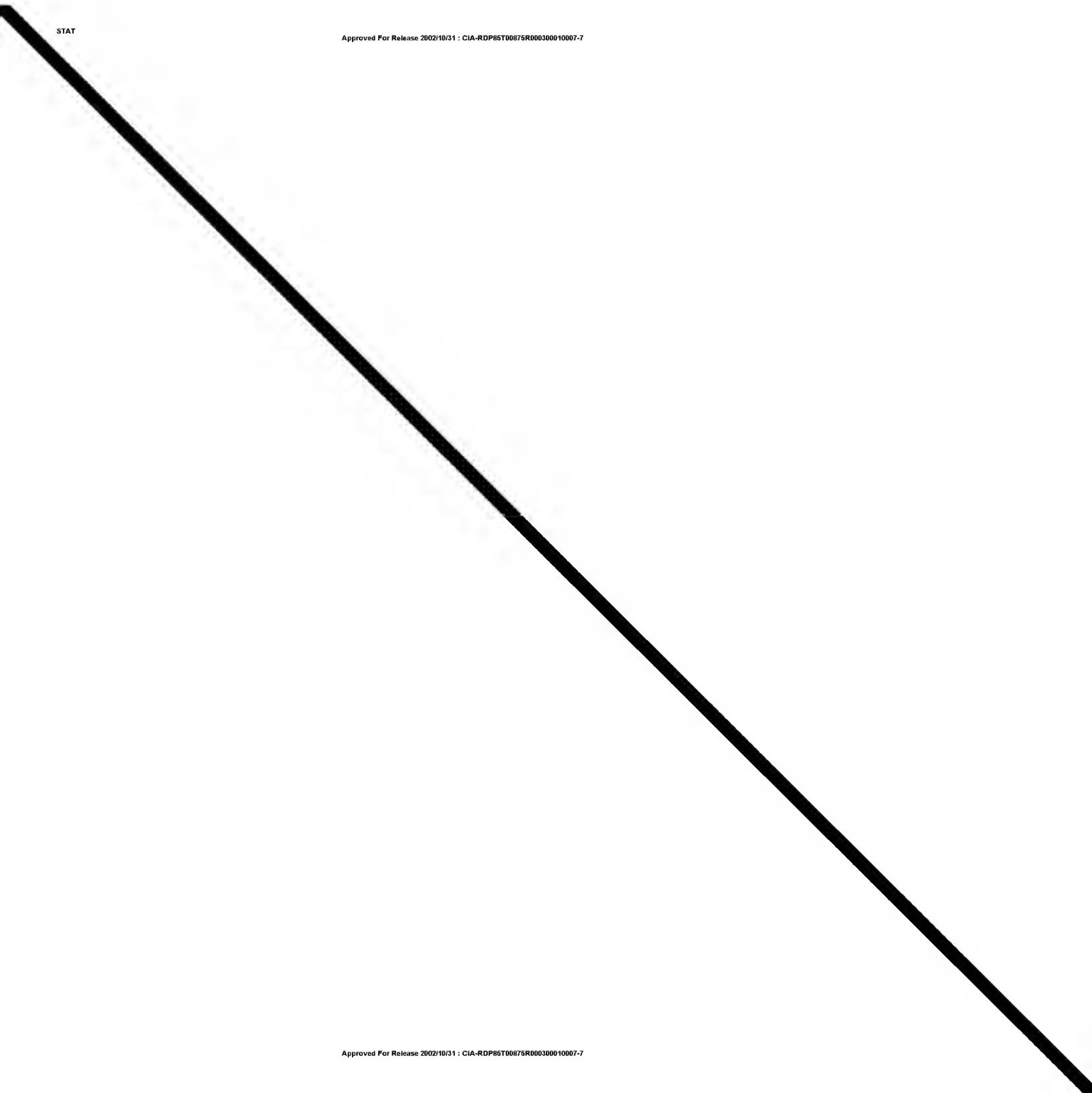

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CONTENTS

THE 24th CPSU CONGRESS AND QUESTIONS OF THE SCIENTIFIC GUIDANCE OF IDEOLOGICAL WORK WITH THE TROOPS

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An enormous role is played by science in the diversified activities of our party and people connected with building Communism. Creation of the material and technological foundation for the new society, implementation of sociopolitical tasks, and indoctrination of the new man all are directly dependent on the development of science and the level of scientific leadership.

Communist society, in contrast to exploiter socioeconomic systems, develops not spontaneously but rather as a result of the conscious, planned activities of the masses, directed toward a common goal by the Marxist-Leninist party. Consequently, scientific leadership and guidance is an attribute of the new, socialist society, and the importance of this attribute is continuing to grow. Presenting the Central Committee Report to the 24th CPSU Congress, General Secretary of the Central Committee CPSU L. I. Brezhnev stated: "We have always and in all things been assisted by the party's revolutionary will, scope, and ability to mobilize the efforts of the millions to perform the tasks of construction, as well as the labor enthusiasm of the worker class, the kolkhoz peasantry and the intelligentsia. Today as never before we must even more closely unite this great force with systematic, painstaking organizational effort, with a consistently scientific approach to economic management, strict self-discipline and efficiency" (my underline -- S. I.).

Viewing improvement in planning as a central element in economic management, the congress noted that "a further rise in the scientific level of planning is becoming a task of primary importance."

These statements apply to all areas of management and directive activity by party agencies, our cadres, including in the ideological area.

The increased importance of scientific direction and guidance of ideological work is dictated by a number of circumstances, which essentially define the enhanced role of ideological effort in general.

In the first place, the scale is broadening and the tasks of party theoretical activity are becoming more complex. As we advance toward Communism, new and more complex problems crop up in all areas of societal development. In order to elaborate a correct course and to avoid subjectivistic errors, the party teaches us that it is necessary to comprehend more deeply the phenomena of societal affairs, to further enrich and develop revolutionary theory.

In the second place, spiritual factors are becoming increasingly effective elements accelerating the accomplishment of the practical tasks of building Communism. For successful implementation of economic and sociopolitical plans it is necessary to raise toiler awareness to an even higher level, to increase toiler incentive to carry out the plan, "to convince," as Lenin stated, "millions and tens of millions of this necessity" (Poln. Sobr. Soch. [Complete Works], Vol. 42, page 140). This of course presupposes a higher level of direction and guidance of ideological effort.

In the third place, the importance of scientific guidance of ideological effort is increasing in connection with the unusual complexity of the task of indoctrinating the new man.

Noted English bourgeois philosopher Herbert Spencer once stated: "No matter what the social organism, the vicious nature of citizens will always be revealed through malevolent acts. There is no political alchemy with the aid of which it would be possible to transform lead instincts into golden behavior." Our Soviet reality has refuted these and similar predictions by bourgeois scientists and politicians. Today the task of shaping the man of the Communist tomorrow has become a practical matter. "The great cause of building Communism," states the Central Committee Report to the 24th CPSU Congress, "cannot advance without the comprehensive development of man himself." Indoctrination of the man of the Communist society is a complex and many-faceted process which requires profound scientific substantiation and skilled direction.

Fourthly, enhancement of the role of scientific guidance is connected with aggravation of the ideological struggle between two social systems -- socialism and capitalism. One must bear in mind thereby that in order to achieve their ends our ideological adversaries are resorting with increasing frequency to pseudoscientific devices and are stepping up the integration of propaganda, politics, and science. It is quite understandable that a vigorous offensive against imperialist and opportunist ideology presupposes scientific substantiation and the fundamental nature of our propaganda activity.

Enhancement of the role of the scientific approach toward direction of ideological effort in the Armed Forces is dictated by the specific features of the mission of the Armed Forces. The Soviet Army and Navy must be constantly prepared to wage war, employing the most advanced weapons; this poses the problem of the moral factor, the morale-political and psychological training of personnel much differently than in the past.

Bearing in mind the increased demands on ideological effort, the Communist Party and its Central Committee are taking effective steps to improve

Communist indoctrination of Soviet citizens and are demanding that party organizations constantly keep these matters in their attention focus and raise the level of direction and guidance of all sectors of the ideological front.

The Laws and Patterns of Ideological Effort

Scientific direction of ideological effort, as in other areas of building Communism, is possible only on the basis of Marxist-Leninist methodology. Of major significance in this area are the tenets of historical materialism on the interaction between the material and spiritual life of society, the role and place of ideology in societal affairs.

Ideological work encompasses two interlinked aspects: ideological-theoretical activity (particularly the development of theory taking specific conditions into account) and introduction of Communist ideology into the consciousness of the masses.

Ideology as a system of ideas expressing the root interests and needs of a given class is a derivative of social being. Arising on the basis of current material needs of society, however, it in turn exerts great influence on the course of societal development. We are speaking not of ideas in general but of ideas which have captured the masses, when they cease to be merely ideas and are transformed into a material force, are embodied in practical deeds.

Scientific guidance of ideological work thus involves the elaboration and enrichment of revolutionary theory as well as the transformation of ideas into a material force.

A scientific approach to implementation of the tasks of ideological work is possible with comprehensive consideration of the material conditions and objective processes taking place in society. Otherwise manifestations of subjectivism are inevitable.

The content, forms and means of ideological effort develop and improve in conformity with continuously changing material and spiritual conditions. That which was vital and essential yesterday may not correspond to today's situation, and consequently may not be applicable today. Failure to take this into account may engender conservatism and a predominance of a formalistic approach toward carrying out the tasks of ideological work.

Scientific guidance presupposes cognition of the objective laws governing ideological work as a unique process of sociopolitical life, as a reflection of the laws of the material and spiritual life of our society. Knowledge of these laws and ability to make practical use of them enable us

more deeply to analyze occurring processes, to see trends in their development and to specify correct and comprehensively substantiated measures for improving Communist indoctrination.

The question of natural laws is a key item in theory of scientific guidance of ideological effort, as in direction of any area in the building of Communism. This question has already been dealt with to one degree or another in the press, in particular in an article by P. Isakov and V. Merkulov, published in Voyennaya Mysl', No 2, 1971. Nevertheless it requires additional, more profound elaboration. Without claiming complete treatment and coverage of this problem, we should like to present certain views.

The laws and patterns of ideological work as the most persisting, repeating essential links manifested in the process of ideological activity can in our opinion be examined in two aspects: first of all as laws and patterns connected with its content, and secondly, as laws and patterns defining the development of the forms and methods of ideological work.

Just what are these fundamental laws, these most stable relations of the most important phenomena and components of our ideological effort?

The determining law of ideological effort is its determination by Marxist-Leninist theory and CPSU policy. This law reflects the thesis that Marxism-Leninism and party policy are the foundation of all ideological effort. "Leninism, as an eternally living, developing doctrine did, does and will continue to occupy the center of party ideological life, constituting the foundation of all party revolutionary-transforming activity," states the Central Committee Report to the 24th CPSU Congress. Turning to the ideological-theoretical legacy of V. I. Lenin, the party sees as its most important task that of finding a solution to the current problems pertaining to building Communism, on the basis of Leninist ideas and Leninist methodology.

Stressing the determination of the content of ideological work by Marxist-Leninist theory, Lenin and the party always focused attention on the necessity of its creative development as an essential condition in order for theory to serve as a guide to action. An enormous contribution to the treasure house of Marxism-Leninism was made by the 24th CPSU Congress. Its proceedings contain a profound scientific analysis of the development of our society since the 23rd CPSU Congress, the problems of the present international situation, new phenomena in the capitalist system, tasks of further strengthening the positions of socialism; the prospects of our progress along the path toward Communism and its armed defense are comprehensively substantiated.

The 24th Party Congress emphasized that the party will be devoting even greater attention to the development of theory, will be enhancing the role of the social sciences and will be striving to place them in a close link with practical activities and the concrete tasks of building Communism. This point is of prime importance for the Armed Forces. Radical changes in army and navy armament, in methods of waging warfare and in all areas of military affairs demand thorough theoretical comprehension of new phenomena. It is possible correctly to resolve matters of modern military organizational development only on the basis of Marxist-Leninist methodology, creative development of theory with consideration of changing conditions. It is essential to bear in mind that the newest and most destructive weapons have not been tested directly in battle. All this enhances the role of scientific prediction and comprehensive substantiation of problems of troop training.

An important contribution toward solving these problems is made by the social sciences. Our military scientists are called upon to work more persistently and in reference to present realities on further research, enrichment of Lenin's military theory legacy, and particularly his doctrine on war and the army and doctrine of defense of the socialist homeland, more deeply comprehending practical recommendations necessary for personnel training and indoctrination under conditions of scientific and technological advances.

The theory of Marxism-Leninism and its creative development are in an inseparable unity with all activity connected with instilling party ideas into the consciousness of the masses, their indoctrination in a spirit of Communism. Since ideological work has the task of arming Soviet citizens and our fighting men with the ideas of scientific Communism, it must utilize to a maximum degree the results of the development of theory and its achievements. Revolutionary theory helps our fighting men comprehend more deeply the grandeur of the road trod by our people, the essence of party policy, including its military policy, the essence of Soviet patriotism and socialist internationalism, and also helps them accomplish their missions in an intelligent manner. Only on the basis of Marxist-Leninist theory is it possible to form a scientific world view in military personnel. Marxist-Leninist theory serves as a solid foundation for a successful struggle against a hostile ideology. Revolutionary theory enriches people's moral upbringing.

The question of influence of policy on the process of ideological-political indoctrination is indissolubly linked with the determining role of theory in ideological work. In the entire system of ideological work a leading position is occupied by propaganda, instillment into the consciousness of our military masses of a political ideology which expresses root class, social interests.

Party policy is determined by objective economic processes, by relations between classes, and expresses the root needs of the toiler masses. Elaborated on the basis of Marxist-Leninist theory, it acquires enormous organizing and mobilizing force. It is understandable that policy largely determines the content of ideological effort as well, particularly in the area of comprehending the tasks of building Communism and mobilization of men for carrying out these tasks.

CPSU policy for future years was elaborated at the 24th Congress. Bearing in mind the enormous theoretical and political importance of the congress documents, the Central Committee CPSU requires that they be made the basis of all ideological activity. They today define the fundamental content of ideological-indoctrinational effort in the Armed Forces as well.

One of the laws pertaining to ideological effort is the increasing influence on ideological effort of the content of the ideological struggle between socialism and capitalism.

In order to understand the substance of this matter it is important to emphasize that intensification of the ideological struggle in the world arena is not the result of some transitory circumstances. It is dictated by the complex processes of development of society. This is one of the manifestations of the deepening of the general crisis of capitalism and aggravation of the class struggle between socialism and imperialism.

At one time the imperialists were counting on crushing socialism and its bulwark -- the Soviet Union -- with military force. Today the situation has changed. Aware of the new world balance of power, the imperialists are to an increasing degree emphasizing the weapon of ideology in the struggle against us, in addition to military adventures. Our class adversaries cannot help but realize the enormous force of attraction of Marxist-Leninist ideas. Nixon once said: "We must realize that a great battle of ideas is taking place in today's world... We must win this battle or perish." This is how the ideologues of imperialism themselves appraise the meaning and importance of the ideological struggle.

Another circumstance which has caused an increase in the influence of the ideological struggle between the two systems on the entire process of ideological-political indoctrination of the masses is connected with a sharp expansion of the technical base of propaganda, particularly radio and television. In 1940, for example, there were 1,100,000 radio receivers in this country, while today the total is 50 million. Modern technical means of communication make it possible to influence people in any part of the world, across all national boundaries.

It is natural that the party views matters pertaining to indoctrination of people in the ideas of Marxism-Leninism and exposure of hostile ideology in an inseparable unity and interrelationship. As is emphasized in the Resolution of the 24th CPSU Congress, "the most important thing in party ideological work is propaganda of the ideas of Marxism-Leninism, an implacable offensive campaign against bourgeois and revisionist ideology."

Consideration of this law in the content of ideological work is an essential condition of a scientific approach to direction and guidance of the entire process of ideological-political indoctrination of the builders of Communism and their defenders.

The content of ideological work is dependent on those economic and social processes which take place in our country's daily activities. This law finds scientific explanation in the major theoretical and methodological principles of Marxism-Leninism on the determining role of social being in respect to social consciousness, on the relationship between the objective and subjective in the development of society.

Lenin demanded that we assimilate "that undisputed truth that a Marxist must take into account the realities of life, the precise facts of actuality..." (Poln. Sobr. Soch., Vol. 31, page 134). These instructions fully apply to direction of ideological work.

Our socialist reality proper constitutes a powerful factor in indoctrinating people in the spirit of Communism. Under its influence are formed ideological conviction, patriotic feelings, and implacable opposition to all manifestations of hostile ideology. At the same time it continuously nourishes ideological effort -- theoretical activity, the process of penetration of the masses by the ideas of the party. Ideological work, constantly enriched by life, is exerting an increasingly active influence on the consciousness of the masses.

It is particularly important to take this law into consideration in direction of ideological work, especially since it demands that one hold the entire process of ideological-political indoctrination in an inseparable link with life, with the practical business of building Communism.

Our army is an inseparable component of Soviet society. The ideological life of the party and nation constitutes a life-giving source of ideological work with personnel. The achievements of the Soviet people in creating the material and technological foundation of Communism find broad expression in the ideological-political indoctrination of fighting men. Comprehensively revealing the significance of the heroic labor of people and army in strengthening the nation's defense and increasing the might of the Armed Forces, we more vigorously indoctrinate military personnel in a spirit of Soviet patriotism and pride in their socialist homeland.

Important conclusions both in a theoretical and ideological-indoctrinational respect proceed from the necessity of developing the Armed Forces taking into account social changes which are taking place in this country. These problems are connected with a profound explanation of the leadership role of the worker class and the alliance of the worker class and peasantry, with demonstration of the great strength of the friendship of the peoples of the USSR, with indoctrination of fighting men in a spirit of proletarian internationalism, as well as with a further increase in the productive activity of the soldier masses, while strictly following a fundamental line -- all-out strengthening of one-man command on a party basis.

Implementing direction of ideological effort in the army and navy, it is extremely important to take into account improvement in the cultural and educational level of the toilers. Characteristic figures in this respect were presented at the 24th CPSU Congress. In 1959 386 out of every thousand workers possessed higher and secondary education, while now the number is more than 550. On the eve of the Great Patriotic War only 6 percent of rural toilers possessed higher and secondary education, while by the end of 1970 the number was more than half. All this has a direct influence on the quality of new recruits entering the Armed Forces. In 1938 6 percent of inductees were illiterate or practically illiterate, while only 5 percent possessed secondary and higher education; today the number of inductees with secondary and higher education is approaching 50 percent.

This objective process cannot help but reflect on the content of ideological work and the level of its direction and guidance. This presupposes first and foremost an improvement in the quality of ideological-indoctrinational measures, constant concern by commanders, political workers and party organizations for maximum satisfaction of the increased spiritual aspirations of personnel.

A specific law governing ideological work in the Armed Forces is the relationship between political and military indoctrination on the one hand and the processes of army and navy functioning and development on the other.

Our country's Armed Forces have gone through a number of stages in their development, each of which has had its own specific features and has gained substantial new content.

Characteristic of the Soviet Army and Navy under present-day conditions is, in the first place, the fact that they guard the productive labors of the Soviet people, which is building Communism; secondly, expansion of international tasks connected with defending the conquests of socialism jointly with the armies of the brother nations; thirdly, gigantic changes in the development of military equipment and weapons, which have produced radical reforms in all areas of military affairs. All this finds expression with objective necessity in ideological work.

All our cadres must thoroughly study and comprehend those new processes and phenomena which are taking place in the army and navy, and they must draw appropriate conclusions both for ideological-theoretical activities and for political and military indoctrination of personnel.

A comprehensive study of the present stage of development of the Armed Forces and their missions has made it possible to draw a fundamentally important, determining conclusion on increased demands regarding personnel morale, and consequently the increased importance of forming excellent morale-political and fighting qualities in personnel. On the basis of this analysis and scientific forecasting of the character and features of modern warfare and the demands imposed on the Armed Forces, a big job is being done to improve the means and methods of morale-political and psychological training of personnel. The importance of military indoctrination is being taken into consideration more fully, since greater demands are being made on our armed defenders, while the time available to train military personnel has been reduced, in conformity with the new law on universal military obligation.

Ideological work cannot help but take into consideration everything which is characteristic of the modern concept of combat readiness, and particularly the existence of new weapons and the danger of a sneak nuclear attack by the imperialists. Today the level of troop combat readiness determines our nation's security and the fate of the process of building Communism. It is precisely for this reason that the demands of the party on the Armed Forces, reemphasized in the resolutions of the 24th CPSU Congress, as well as orders issued by the Minister of Defense USSR are permeated with the idea of maintaining continuous troop combat readiness. This idea finds reflection in ideological indoctrinational effort in the army and navy. One cannot ignore such important components of combat readiness as level of combat and political training, mastery of combat equipment, discipline, and state of the art of war.

In connection with an increase in demands imposed on man and his inner strength as well as the complexity of training personnel to operate under conditions of modern war, the role of military psychology and educational science has become enhanced. Military psychology and military educational science help utilize with greater effectiveness ideological means to influence the consciousness of military personnel. Knowledge of these sciences by military cadres is an essential condition for scientific direction and guidance of ideological effort. This has always been true, but it is becoming even more important at the present stage of development of the Soviet Armed Forces.

The laws governing ideological effort are manifested both in its content and in the forms of implementation.

In discussing the laws of development of the forms and means of ideological work, we can single out two of them which are of the greatest significance: a) the relationship between their development and qualitative change in the human material; b) the fact that they are determined by improvement in the technological basis of mass information.

As has already been noted, every year army and navy inductees represent a higher cultural and educational level. This naturally not only increases demands on the content and level of ideological effort but also dictates with objective necessity a creative and innovative approach to utilization of the forms and means of personnel ideological-political indoctrination. The work forms and methods employed with low-literacy and even illiterate military personnel, as was the case in the early years of our army's existence, are far from those used today, with our highly-educated fighting men.

In widespread use under present-day conditions are the lecture-seminar method of holding political classes, group discussion of various topics pertaining to theory, politics and culture in the form of seminars, discussions, reports, debates, question and answer evenings, get-togethers with scientists, people active in literature and the arts, veterans of the Revolution and other wars, and reader conferences. All this (in addition to interesting lectures, reports, discussions) arouses the interest of personnel and increases personnel activity.

In discussing the influence of technical devices and mass communications media on the forms and methods of political and military indoctrination, one should note first and foremost the rapid growth of our press, cinema, radio, and television. In 1940 750 copies of magazines and newspapers were published per thousand military personnel, while in 1970 the figure was approximately 1500. In the last 12 years alone the number of motion picture projection facilities has almost doubled, while the number of television sets has increased almost 40-fold. The television set has now solidly entered the arsenal of the diversified means of ideological effort, along with new forms -- group viewing of TV broadcasts with subsequent program discussion, etc. All this naturally enriches ideological-political work with personnel.

Proceedings of the 24th CPSU Congress -- Basis for Ideological and Political Indoctrination

Scientific guidance of ideological work is arranged in conformity with objectively operating laws, taking into account their diversified manifestation. In daily practice these laws are expressed in general principles of ideological work. They include: party-mindedness, implacable opposition to hostile ideology, a link with life, the tasks of building Communism, its armed defense, etc.

These principles serve as points of reference in directing all aspects of ideological-political indoctrination and theoretical activity. In conformity with these principles, securement of a high ideological level in the entire process of military personnel indoctrination is of decisive significance, as well as the forming of Communist consciousness in personnel on the basis of Marxism-Leninism, and indoctrination in a spirit of a class approach toward evaluating the phenomena of societal affairs and implacable opposition to all manifestations of hostile ideology. To be guided by Leninist principles of ideological work means to seek a continuous and inseparable link between ideological effort and the practical business of building Communism, those processes which determine the functioning and development of the Armed Forces.

Of great theoretical and methodological importance for guidance of ideological effort are the proceedings of the 24th CPSU Congress. They serve as the basis of ideological-political indoctrination of the people and its fighting men over a protracted period of time. The congress proceedings provide substantiation for the increased importance of indoctrination of a new man in an inseparable unity with the solving of economic and sociopolitical problems.

The congress emphasized that the forming in toilers of a Marxist-Leninist world view, excellent ideological-political qualities and standards of Communist morality will remain in the future a central task of ideological effort by party organizations.

The most important thing in party ideological work, states the Congress Resolution, is dissemination of the ideas of Marxism-Leninism and a relentless struggle against bourgeois and revisionist ideology.

The congress specified that a most important component of ideological-political effort is indoctrination of a Communist attitude toward labor and public property, development of toiler creative activity and strengthening of conscious discipline and organization.

The congress proceedings constitute an inexhaustible source of inspiration for our toilers, our fighting men, indoctrinated by the party in a spirit of Soviet patriotism and proletarian internationalism.

The Congress Resolutions teach an innovative approach toward guidance of ideological effort, implacable opposition to formalism, stereotypes, and the ability to influence in a purposeful manner and at all times people's minds and consciousness in a spirit of Communism.

Scientific guidance of ideological work is essential at all echelons of the military organism. This guidance is effected by the Main Political

Administrations of the Soviet Army and Navy, the military councils and political administrations of the services, districts, fleets, groups of forces, large unit and unit commanders and political workers.

An essential component of guidance is a profound scientific analysis of the state of ideological-political effort. Diversified means and methods are employed for this -- direct work in the units and subunits, various political information channels, etc. An increasingly important position is being occupied by specific sociological investigations, which make it possible more deeply to study various social facts, concrete manifestations of the laws governing ideological work, and to cognize those processes which take place under the influence of real life in people's consciousness. Electronic computers are beginning to be used for these purposes.

Scientific guidance includes elaboration of measures or a system of measures to improve ideological work. On the scale of the Armed Forces this matter is handled directly by the Main Political Administration. Such measures find expression in orders and directives on ideological work. The most important of these is the annual directive on political training of Armed Forces personnel. It is elaborated on the basis of comprehensive study of the state of ideological effort in the troops and Communist Party decisions, taking into consideration the missions performed by our Armed Forces.

In the new 1972 training year, in full conformity with the instructions of the Central Committee CPSU, the fundamental content of political training and all ideological effort will be a further, deeper study of the proceedings of the 24th CPSU Congress and mobilization of our fighting men to implement the Congress Resolutions.

In conformity with the instructions of the Central Committee CPSU and directives issued by the Minister of Defense USSR and the Main Political Administration of the Soviet Army and Navy (taking performance of specific tasks into consideration), measures are being elaborated by the military councils and political administrations of the services, districts, fleets, groups of forces, and large unit political entities.

Scientific guidance presupposes specific work aimed at implementing adopted directives, plans and resolutions. Principal attention thereby is focused on ensuring a high level and effectiveness of ideological effort. This task is accomplished in a number of areas. An important role here is played by training of propaganda cadres. A well-balanced system of work with staff and non-T/O propagandists had been established in the army and navy. A component part of this system is meetings and seminars at which lectures are delivered and current problems of political and military indoctrination of personnel discussed.

An essential condition for ensuring the requisite level of ideological work is preparation of the necessary literature and manuals, their prompt delivery to military units and naval ships, and their intelligent utilization in working with personnel.

Scientific guidance of ideological work is a continuous process; it cannot be linked solely with individual measures, even the most effective. Essential in this area is constant concern for theoretical synthesis of all new developments advanced by daily life and practical Communist indoctrination. Guidance can be effective if one takes into consideration those phenomena which take place in the area of the ideological struggle in the world arena and analyzes the state of troops, processes of qualitative improvement of personnel and the course of accomplishment of assigned tasks.

Consistency in guidance of ideological work is also essential because we are dealing with people's consciousness. Indoctrination is purposeful, continuing influence on an individual's consciousness. Therefore guidance of indoctrination cannot be effected from one measure to the next; it must be continuous.

For implementation of guidance of ideological effort an entire system of measures is required, measures aimed at carrying out the plans and instructions of higher bodies. These measures are connected with assigning tasks to executing personnel, the lending of practical assistance and the dissemination of advanced know-how.

The holding of conferences and seminars is widely practiced for the purpose of explaining tasks, instructions, and training on the basis of positive experience. For example, seminars were held in connection with the 24th CPSU Congress with various categories of party workers, with staff and non-T/O propagandists, with journalists, and with cultural and educational establishment staff personnel. Meetings of party activists and party meetings were extremely beneficial in this respect.

One effective method of guidance is personal contact between commanders and subordinate party and ideological workers. This makes it possible to gain better knowledge of the state of affairs on the spot and to help people more effectively to carry out assigned tasks. Scientific organization of labor, which has the aim of increasing labor efficiency with minimum outlays of manpower and resources, is being more and more vigorously adopted in diversified ideological activities, particularly in the activities of political entities.

An extremely effective device ensuring execution of stated tasks and plans is regular, well-organized checks and verification of execution. Verification is effected both during inspection and periodic checks on the state

of ideological work and in the course of routine checks. Achieved results in combat training are also taken into account.

The purpose of verification of execution is not only to determine the true state of affairs and to reveal shortcomings but also to offer assistance and enrich commanders and political workers with advanced know-how in this area. At the same time they presuppose fundamental, consistent demandingness and the correction of faults on the spot. The fundamental task of verification, stated Lenin, "is not so much to 'catch,' to 'expose'... as to know how to correct" (Poln. Sobr. Soch., Volume 44, page 127).

A prominent place in scientific guidance of ideological-political indoctrination is occupied by well-organized party political information. Party political information is one of the forms of party guidance in any area connected with building Communism, and particularly in the area of ideological effort. It is a matter of direct and feedback linkage between party entities and officials on the one hand and the masses on the other.

Political information makes it possible to take more completely into account the interests and attitudes of various categories of military personnel, more purposefully and effectively to conduct ideological and organizational work.

Constituting a major component of scientific guidance of political and military indoctrination of personnel, it presupposes systematic information from above, from the center to each party and Komsomol organization, to each subunit, with utilization of the most diversified means. At the same time there should be a continuous flow of information from below -- on the political-morale state of personnel, positive and negative aspects in the activities of military collectives. An essential condition for such information is its objectivity and reliability. Otherwise it can lead to an incorrect appraisal of the state of affairs and consequently to the making of insufficiently substantiated decisions.

Scientific guidance of ideological work also presupposes systematic investigation of the effectiveness of utilization of the forms, methods and means of ideological influence on the consciousness and attitude toward service on the part of personnel. Effectiveness of ideological work is not a simple concept. It includes the degree of people's comprehension of party policy and activeness in its implementation, participation in sociopolitical affairs, and observance of Communist moral standards. For army and navy personnel it is first and foremost a thorough understanding of party military policy, CPSU demands on the Armed Forces and practical implementation of these demands, a conscientious attitude toward mastery of military affairs, and the maintenance of a high level of discipline and organization in the troops.

It is understandable that the scientific approach cannot achieve its objective without deep penetration into the essence of the matter, without knowledge of the degree of effectiveness of conducted ideological measures.

It is quite obvious that scientific guidance of ideological effort, as of any area of Communist organizational development, imposes great demands on cadres as on party leaders. "We need people," stresses the Central Committee Report to the 24th CPSU Congress, "who combine a high degree of political awareness with excellent professional training, people capable of knowledgeably solving problems of development of the economy and culture, individuals with a mastery of modern methods of management and control."

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There is a well-known thesis that to guide means to foresee. In order to foresee it is necessary to know, to utilize objective laws, to be able from the standpoint of Marxist-Leninist methodology to appraise any given phenomena of societal affairs.

Ideological work in the Armed Forces is conducted not only by specialists in this area but also by all Communists, by our military cadres Consequently, scientific guidance of this important sector is the affair not only of a small group of workers of the ideological front. Of great importance for all supervisor and executive cadres is implementation of a unity of organizational and ideological activity. There is not nor can there be any guidance of an isolated area of ideological-political indoctrination. This work is conducted in an inseparable link with the entire process of training armed defenders of the homeland, improvement in combat readiness, and strengthening of discipline in the units, on board naval ships and in large units.

* * *

The 24th CPSU Congress has enriched the entire ideological-political life of our party and nation, the Soviet Army and Navy. It has provided a profound substantiation of economic and sociopolitical tasks for the immediate future. Congress resolutions reflect problems connected with further strengthening of the Soviet Armed Forces. The congress specified the ways and means of accomplishing these tasks. One of the main elements upon which attention is focused in these documents is improvement of the control system, and within it -- improvement of the scientific approach toward leadership and guidance in all areas connected with building Communism. Mastery by our cadres of the scientific principles of guiding and directing the ideological effort is an important condition for further improving the moral spirit of our troops and increasing the combat readiness of the Soviet Army and Navy.

LENINIST IDEAS CONCERNING THE ROLE OF THE REAR* IN WARFARE

Colonel General K. Abramov and Major General M. Ivanov

For the first time in the history of military thinking, the classic authors of Marxism approached the problem of the nation's rear from scientific positions. They are the ones who revealed the role of the rear in the course of a war and the influence of the rear on its outcome. V. I. Lenin pointed out that the rear is of decisive importance in the achievement of victory. "A strong, well-organized rear is essential for the proper conduct of a war." (Complete Collected Works, Volume 35, p 408). This conclusion is based on a dialectical consideration of the multifaceted relations between the armed forces and the national economy, and is organically linked with the content of the very concept of "rear."[1]

It should be stated that the concept "rear" has existed in the military field for a long time, but that it has been interpreted in a narrow and simplified manner. The entire matter was reduced to its quantitative aspect: how much steel had been smelted, how much coal and oil had been extracted, the size of the population, and so forth. This point of view was held by bourgeois military theoreticians long before the beginning of the First World War and during subsequent years. In principle, the same views on the rear are shared by the contemporary military theoreticians of imperialism.

Of course, the quantitative aspect of material production is of tremendous importance with respect to supplying the active forces with equipment, arms, rations, and other types of supplies. V. I. Lenin understood this better than anyone. "Whoever has the greatest amount of equipment, organization, discipline, and the best vehicles," he taught, "will have the upper hand." (Complete Collected Works, Volume 36, p 116). He emphasized the role of heavy industry as the basis of the national economy, providing the front with everything necessary.

However, if we were to attempt to demonstrate the direct dependence of victory in a war on the volume of production achieved, we would not be able to properly explain many historical facts. In fact, if we were to proceed

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[1] This problem has already been discussed in the journal Voyennaya Mysl' in issues Nos. 4 and 6 of 1970 and earlier issues.

* See translator's note at the end of the article pertaining to the use of the word "rear."

from production volume alone, then how could we understand why the young Soviet republic with its ruined economy was able to sustain military single combat with internal counterrevolutionary forces and with the Entente powers whose level of production forces exceeded that of our nation by dozens of times?

As we know, during the years of the Great Patriotic War the USSR was also inferior to fascist Germany in volume of production. It had at its disposal not only its own production potential, but also the potential of its allies and that of the nations which it had enslaved. This superiority became especially important after the occupation by the Hitlerites of vast territories of the Soviet Union. Nonetheless, however, the world became a witness to what would appear to be completely impossible: during the course of the war the Soviet Union greatly surpassed fascist Germany in the output of all of the basic types of arms and military equipment and crushed the aggressor.

Even at the present time, with a level of production development which is inferior to that of the United States of America as a whole, the Soviet Union has been able to successfully set up the production of modern armament and military equipment. Although the Warsaw Pact nations have still not caught up with the states which make up the aggressive NATO bloc with their combined production volume, the defensive shield of the socialist nations, however, is reliably protecting the fraternal nations engaged in creative labor. Bourgeois minds are not capable of dispassionately and objectively evaluating the limitless possibilities of the socialist nations. Otherwise, they would have to acknowledge to the whole world the great superiority of the socialist structure. It is clear that they cannot do this. That is why they are continuing to put the main stress on the quantitative indices of the national economy. It is precisely from the quantitative aspect of economics that the well-known American logistics specialist, Rear-Admiral Eccles proceeds in all of his opinions in his book Logistics in National Defense.

Another American expert in the area of logistics and military economics, Professor Knorr, in his monograph The Military Potential of Nations, categorically denies the influence of the social structure on the military and economic possibilities of a nation. He writes that "the form of government and the social structure which supports it are far from playing a decisive role in determining military potential."

The greatest service of Lenin consists precisely in the fact that he approached the solution to this problem in a genuinely scientific manner, from positions of dialectical materialism and revealed factors which many researchers could not or did not want to see. In doing this he was going against ingrained and incorrect views on the role of the rear and its economic possibilities. As early as the eve of the October Revolution

V. I. Lenin came to the conclusion that the economic organization of society, that is, the nature of production relations, is of decisive importance for the conduct of a war and that socialist production relations provide tremendous advantages for a people engaged in war.

Of course, a certain level of production development, especially heavy industry, is essential. Even now concern for its development stands at the center of attention of the Communist Party. The Resolution of the 24th Congress of the CPSU points out that "there should continue to be rapid rates of development in heavy industry, the basis for expanded reproduction, for technical reequipment of the national economy, and for the defensive might of the Soviet State." A certain level of development of culture and science is also required. "Without science," Lenin emphasized, "it is impossible to develop a modern army." (Complete Collected Works, Volume 40, p 183). He also saw the development of science as dependent upon the economic organization of society.

It is important to underscore the fact that V. I. Lenin viewed economics in both the narrow and broad sense of the word. In the narrow sense it is the achieved level of production development expressed in quantitative indices. In the broad sense economics is the level of production development and the economic organization of society, taken as a whole.

A question naturally arises as to why V. I. Lenin assigned decisive significance in a war to precisely the economic organization of society and the nature of production relations. This is explained by the fact that it is precisely the economic structure which creates the conditions for the rates of development of the production forces and the effectiveness of their use, and determines the stability of the government and the viability of the rear.

The economic structure and the political organization of society corresponding to it represent the basis for the actions of subjective factors. That is, they define the prerequisites for the emergence and strengthening of a corresponding moral spirit of the population and armed forces' personnel and for the development of science, including military science, and determine the effectiveness of the organizational, political and educational, and other activities of political parties and government and military agencies.

At the same time it should also be pointed out that the advantages of a socialist economy do not simply appear by themselves, automatically. A decisive role in their realization belongs to the Marxist party which oversees the entire defense of a socialist state and unites and solidifies all of the efforts of the army and the people. "Without a party," V. I. Lenin pointed out, "of iron-like strength and tempered in battle, without a party which enjoys the confidence of every honorable individual

in a given class, without a party which is able to keep its finger on the mood of the masses and influence it, it is impossible to conduct such a battle successfully." (Complete Collected Works, Volume 41, p 27).

The immutability of Lenin's instruction has been confirmed by the entire history of our motherland. During the years of difficult military trial the Communist Party showed itself to be a real fighting party. During the Civil War it represented the decisive force in converting the nation into a united battle camp and in mobilizing all of its forces to destroy the enemy. The party also completely justified the trust of the masses during the years of the Great Patriotic War. It boldly assumed responsibility for the fate of the socialist homeland and led the Soviet people to a great victory over the assault forces of world reaction, fascist Germany and imperialist Japan.

Analyzing wars of the new era, V. I. Lenin noted that "the tie between a nation's military organization and its entire economic and cultural structure has never been as close as it is at the present time." (Complete Collected Works, Volume 9, p 156).

History has completely confirmed this conclusion by Lenin. The direct expenditures by both sides during the First World War exceeded by 10 times the expenditures for all of the wars which had been conducted during the preceding 113 years. During the Second World War military expenditures exceeded the expenditures of the First World War by five times, and the bulk of these went for equipment and arms. The "war industry" has grown greatly, as has the role of the professional and technical qualities of the personnel, which is inseparable from the level of culture and education in society.

A war employing nuclear missiles will introduce a great deal which is new into the interdependence between the front and the rear, if such a war is unleashed by the imperialists. It will require tremendous material means and a developed military economy. It should be taken into consideration that the scientific and technical revolution is also having an all-round effect on military production and is lending urgency to the problem of competition in the sphere of science and technology. L. I. Brezhnev, in a speech at the International Conference of Communist and Workers' Parties in June of 1969, noted the successes achieved by the Soviet Union and at the same time emphasized the fact that one must not underestimate the strength of those with whom it is necessary to compete in the scientific and technical sphere. It will be a long and difficult struggle.

New requirements of the rear are emerging from the coalitionist nature of war. In preparing for a world war the imperialists are combining their forces and creating military-political blocs, national economic organizations, and so forth. Under these conditions special urgency is assumed

by V. I. Lenin's instructions on the necessity of solidifying the anti-imperialist forces. "Facing the tremendous front of the imperialist forces, we strugglers against imperialism represent an alliance which requires military solidarity and we view any attempt to violate this solidarity as a completely unacceptable phenomenon and as treason to the interests of the struggle against international imperialism....We say that a unity of military forces is essential and that a deviation from this unity is unacceptable." (Complete Collected Works, Volume 40, pp 98, 99).

A union of all of the forces of the socialist nations and an all-round strengthening of their rear, which is regarded as the rear of the coalition of socialist states, is required for purposes of ensuring the defeat of the imperialistic aggressors.

Application of the rear's potential in modern war depend now, more than before, on the nature of the social structure, the economic and political organization of society, and the flexibility of the party, government, and military leadership.

V. I. Lenin pointed out the necessity for unity and centralization in the military and political leadership of the entire matter of supplying the army and the necessity for a careful accounting of the material possibilities in planning operations and the war as a whole. During the years of civil war, this principle was reflected first of all in the organization of the higher links of military-governmental agencies. The Defense Council was in charge of the armed struggle, the rear as a whole, and supply of the army. It contained military-political workers who dealt directly with matters of organizing the work of supplying the front.

The experience of the Civil War, which brilliantly confirmed the Leninist principle of single military-political leadership of the entire national defense, was embodied in the State Defense Committee during the years of the Great Patriotic War. Representing the highest agency for supervision of the entire national defense, it directed toward a single goal the activities of all party, governmental, and military agencies, all branches of the national economy, and the efforts of rear workers and front line soldiers for purposes of transforming the entire nation into a single military camp.

The Armed Forces' rear is the essential link, providing a link between the front and the nation's rear. Its work, however, is not limited simply to intermediary functions between the front and the national economy -- transportation of supplies, storage, distribution of material and technical means, evacuation of wounded personnel and damaged equipment from the combat zones, and so forth. Representing an integral part of the army and navy, rear area agencies of the armed forces actively participate in the planning and preparations for military actions on various scales.

Proceeding from the missions assigned by command and the actual possibilities for their support, the rear area agencies determine the requirements of the forces for all types of material means and the methods and forms of material and technical support of combat actions. In this sense they influence the planning of combat actions on the one hand, and on the other, the organization of production, first of all by those branches which provide for the state's military needs.

V. I. Lenin taught that the new type of army is developed on the class principle with party leadership playing a determining role, and that Red officers must be active disseminators of party policy and conveyors of the ideas of socialism, and must be infinitely devoted to their motherland. Only then will they "enjoy authority among the soldiers and be able to strengthen socialism in our army. Such an army will be indefeatable." (Complete Collected Works, Volume 37, p 200).

The Soviet officer must excel over an officer of the bourgeois army in military and political training. He must possess a profound knowledge of his specialty and a high level of general culture. In clarifying the essence of any given requirement placed on all Soviet party and governmental personnel, V. I. Lenin pointed out that it is necessary to be competent, to know the equipment at its modern level, and to have a certain scientific education. (Complete Collected Works, Volume 40, p 215).

It follows from the above that officers of various branches of the Armed Forces, arms, and service branches, including those in the rear areas, must constantly expand their special skills and knowledge, improve the training and education of their subordinates, and be guided by the principles of scientific organization of military work without which productive work by command personnel in general and those of the rear in particular is unthinkable.

By guiding oneself according to Lenin's instructions and considering the entire body of experience in the development of the Soviet Armed Forces, it is possible to single out a number of specific qualities which are inherent in the logistics officer.

In the first place, he is required to have a firm knowledge not only of his own functional duties, but also of military matters related to the duties performed by him, especially those of the branch in which he is serving.

A logistics officer is not just an administrator, a transportation specialist, a builder, a repairman, and so forth, but also a commander with a mastery of military matters and able to think on operational-tactical and strategic scales. Only under this condition can he correctly comprehend his position and role in the "general structure" and be able to carry out successfully the daily assignments.

In the second place, he is obligated not just to have a complete mastery of the complex equipment of the logistical services, but also to understand the principles of employment of combat arms of those troops for which he provides logistical support.

In the third place, he cannot get by without the appropriate economic knowledge in order to have a state approach to expenditures of material-technical and financial means in carrying out assignments involved in troop support. "It is necessary," V. I. Lenin pointed out, "to be an economist, evaluating every corresponding step in the work..." (Complete Collected Works, Volume 43, p 359).

In the fourth place, there is no such thing as a "rest break" for the logistics officer in a combat situation -- neither short ones nor long ones. He works straight through, which requires endurance, presence of mind, and operational efficiency.

In the fifth place, his work is frequently carried out in isolation from the large troop collectives, and his subordinates perform their duties in small subunits or very small groups. All of this makes control more difficult and complicates the organization of combat and technical training, educational work, and so forth. This characteristic requires that the logistics officer be competent, firm, politically mature, and morally and psychologically stable, and that he have the ability to mobilize the personnel and supervise them efficiently.

Success by the field forces is directly dependent upon uninterrupted supplies for them. This is possible under the condition that the entire system of logistical support corresponds to the organization of forces which has developed and if logistics officers base their work on tried and tested scientific principles and demonstrate creative initiative, an enterprising nature, and persistence.

In emphasizing the necessity for centralized administration of the rear and the distribution and utilization of material resources, V. I. Lenin singled out the requirement for concentrating forces and means at the decisive sectors of the armed battle. This requirement was successfully fulfilled by the Red Army during the years of the Civil and Great Patriotic wars. The forces and means were massed on truly great scales at the battles of Moscow, Stalingrad, and Kursk, during the extensive offensive operations of 1944, during the battle for Berlin, and others, which have become a brilliant page in the history of Soviet military art. In massing its forces and means, the rear successfully fulfilled its troop support missions. It is sufficient to recall that in 1944 alone, 2.675 million carloads of operational-supply cargo was hauled on the railroads and that military vehicle routes extended 55,000 kilometers. The troops were

supplied with 3.846 million tons of fuels and lubricants, which represented around one-third of the amount used during the entire period of the Great Patriotic War.

V. I. Lenin directed a great deal of attention toward implementation of the principle of having the rear area forces and means near the troops to be supported. He resolutely cut through red tape, bureaucracy, and foot-dragging in supplying the army and navy with the necessary types of allowances. For example, he telegraphed the chief of supplies for the Southern Front in August of 1919 that: "You were sent a considerable quantity of equipment and footwear during July. In spite of this, among all of the armies of the Southern Front certain units are without clothing and footwear. Under threat of the strictest personal responsibility, I propose that you take decisive measures to immediately distribute what has been received among the needy units."

The important principles in the work of the Armed Forces' rear logistical support units include a high level of maneuverability (corresponding to the maneuverability of the field forces), the integrated use of all types of transportation (with mandatory consideration for the specific features of each type), maximum utilization of local means and resources for the needs of the front, and also strictest economy of all materiel used by the forces. "The defense of the Soviet republic urgently requires the greatest economy of forces and the most productive application of national labor." (V. I. Lenin, Complete Collected Works, Volume 37, p 367).

V. I. Lenin associated the intelligent use of resources allocated to the army with the organization of accounting and control and with the correct planning of the requirements of the forces and economy on the part of everyone who had anything to do with materiel. He attached special importance to the time factor. A decree of the Defense Council stated that at the moment of a decisive encounter with the enemies of the Russian Soviet Republic, all forces must be concentrated on supplying the Red Army and that each second of the work of satisfying its needs is important.

Vladimir Il'ich demonstrated careful concern for the establishment of medical service at the front. In the article, "To the Aid of the Wounded Red Army Man!" he said that "all of our difficulties and torments are nothing compared with that which is the lot of the wounded Red Army man who has shed his blood in defense of worker and peasant power....Let each individual in the logistical service remember his duty, that of helping the wounded Red Army man in every way he can." (Complete Collected Works, Volume 41, p 156).

Lenin's positions on the role of logistics in a war are also valid under modern conditions. They are part of the foundation of the activities of the CPSU and communist and workers' parties of other socialist nations,

and are being implemented under conditions of scientific and technical progress and the military-technical revolution, which have posed a multitude of difficult problems for the logistical support of the Soviet Armed Forces. An intelligent solution to these problems requires a creative, dialectical approach to analysis of the continuously developing concrete historical situation, about which V. I. Lenin spoke more than once.

At the same time it must not be forgotten that an objective law is active in the development of science and practice -- general premises of a theory retain their importance over the course of a lengthy period, even under greatly changing conditions, such as those, for example, which the development of modern means of warfare has entailed. Lenin's positions, which we have reviewed, are precisely of the most general nature and therefore, even today form the basis for the solution of urgent theoretical and practical problems, including those involved in logistical support of the forces. Extremely valid are the words of V. I. Lenin that "whoever struggles for individual matters, without first resolving general matters, will inevitably 'come up against' these general matters at every step without being aware of it." (Complete Collected Works, Volume 15, p 368).

Consequently, both theoretical conclusions and practical recommendations toward improvement and development of the armed forces' rear services absolutely must correspond to the general positions. If they contradict these, then it would behoove one to give some thought to their expediency in the realization of the practical work. At the same time it would not be correct to set out on a course of simple deduction of the concrete from the most general positions. Proceeding in this way we would find ourselves the prisoners of fruitless theorization.

Concrete conclusions and recommendations, new principles, as well as new forms and methods of practical operations by logistical support agencies and establishments can be developed only on the basis of an in-depth and comprehensive analysis and a summarizing of modern reality, with the emphasis on the most general theoretical positions, and with mandatory control of their practice. And such an approach to recognition of reality, Lenin teaches, requires that an enterprising and principled nature be demonstrated, that the collective experience be taken into consideration, and that the totality of mutually related phenomena be thoroughly understood. "The signs of our time," said Marshal of the Soviet Union A. A. Grechko, USSR minister of defense, at the 24th Congress of the CPSU, "are the rapid processes of development, and renewal and improvements in all of the spheres of human activities, including military matters. This is constantly posing new and more difficult tasks for us."

Supported by Lenin's conclusions and instructions and taking into consideration the specifics of modern warfare, as well as the increased material

possibilities for logistical support of the forces, the central committee of our party has assigned new and difficult tasks to logistical agencies of the Armed Forces. The party and government have approved a number of effective, scientifically substantiated measures for the creation of a qualitatively new logistical service for our armed forces. The theoretical development of problems of logistical support has been intensified. Troop exercises, especially the "Neman" logistical support unit exercises, conducted in July and August of 1968, and the "Dvina" exercises, the largest of the postwar period, conducted in March of 1970, have been especially important for checking out the new theoretical conclusions and for purposes of further development of the theory and practice of logistical support. The operations of rear service agencies and troops during these exercises showed that the Soviet Armed Forces' logistical support is on a level with modern requirements and is prepared to carry out combat missions.

At the same time experience has irrefutably demonstrated that under modern conditions military specialists must have a thorough knowledge not just of the aspects of military affairs, but also of the activities of the nation's rear and its potential, and must be able to participate in the realization of these potentials to supply the army and navy with everything needed under the leadership of the appropriate military-political and military agencies.

[Translator's note. The Soviet definition for the word "tyl" [literally: "rear" or "rear area"] as given in the Tolkovyy slovar' voyennykh terminov (Defining Dictionary of Military Terms), Moscow, 1966 is as follows:

"1. During wartime in the broad sense - the entire territory of the country with its population, economy, state and political structure. The term 'rear' (tyl) connotes the strength of the economic and moral potential of a country, insuring during wartime the material needs of the front and the replenishment of manpower reserves for the active and deployed forces. 2. In the armed forces - the aggregate of units, subunits and installations organized for the purpose of providing the branches of the armed forces with everything required for their subsistence, training and combat operations and intended for the material, technical and medical support of the troops. The rear area of active armies in the armed forces is divided into operational and close support [divisional and regimental]. (See 'close support rear area' (voyskovoy tyl))."

"Voyskovoy tyl. Close support rear area - is the aggregate of rear area [or: logistical support] units, subunits and installations with reserves of materiel included within the complement of troop combined-units (units, subunits) and intended for their material, technical and medical support.

The main tasks of the close support rear area are: timely support of subunits (units) with the necessary materiel (munitions, fuel, rations, etc.) in all conditions of the combat situation; maintaining in proper working order armament, combat and other equipment, and also providing for their timely repair and evacuation; implementing measures for the maintenance and strengthening of the health of personnel, providing timely medical assistance to the sick and wounded and providing for their evacuation to and treatment in medical facilities; battlefield collection and evacuation of armament, equipment and property, both of friendly troops and captured items."

In this translation the term "tyl" is translated as "rear" or "rear area" or "rear services" or "rear support" or "logistics" or "logistical support" depending on the context and based on the above definitions.]

ON THE QUESTION OF FORESIGHT

Col D. Samorukov

In recent years our press has devoted increasing attention to problems of scientific foresight and prediction in military affairs,[1] and this is quite logical.

The appearance of nuclear weapons produced a revolutionary change in the character, forms and methods of military operations and, as a result, the importance of foresight and prediction in troop control became immeasurably greater. At the same time the content of prediction changed radically, and the conditions for its implementation became extraordinarily more complex. The following examples present convincing evidence of this. In the past prediction of the course of operations was based chiefly on taking into account gradual probable situation changes at a more or less specific time, while under conditions of nuclear warfare it is necessary to take into consideration the possibility of practically instantaneous situation change at any time in relation to the beginning of military operations. The equipping of armed forces with nuclear missile weapons, an increase in the fire capability of conventional weapons, and increased troop maneuverability have produced a sharp increase in the scope of modern operations and depth of attacks. As a result there has occurred a substantial broadening of the spatial framework of prediction of the course of military operations.

The commander and his staff will now be dealing with solution to such a totally new and primary problem as the establishment of probability and time of employment of nuclear weapons, as well as assessment of the possible results and consequence of nuclear strikes, particularly massed strikes.

The complexity in predicting development of military operations under present-day conditions is also dictated by the fact that it is necessary on a time-limitation basis to analyze a large number of matters and to obtain conclusions possessing a sufficiently high degree of reliability. Today prediction should be based on a rigorous consideration of the results of mathematical simulation and on the utilization of operational calculations performed with the aid of electronic computers.

All these elements require further, more thorough elaboration of this problem and a search for ways to solve it.

In light of the above we should like in this article to share with the readers some ideas on such questions as the possible and advisable degree

of detail in prediction,[2] objectivity of data utilized in prediction, and the relationship between prediction and decision.

Possible and advisable degree of detail in prediction. In predicting combat operations the commander naturally wishes to picture the entire future process as fully as possible. This enables him to penetrate deeper into the essence of the contradictions and conflicts within such a complex phenomenon as the engagement and operation.

But penetration to the depth of a given process and its cognition is infinite. In addition, no matter how carefully a prediction is made and a plan of action elaborated, in practice there may be a need to refine certain elements, and sometimes very substantial elements. The probability of this will be in direct relation to the distance in time to the predicted events. A question quite naturally arises: what is the possible and advisable degree of detail in prediction? Should an effort be made to predict the entire process down to the finest details and in a specific sequence? Would it not be better to limit oneself to such a detailed prediction only in respect to the initial stage of the process and to endeavor to picture the general, overall result of actions?

In our opinion the following should constitute the guiding element in approaching the solution to these problems. A deep, detailed prediction is certainly desirable even if the plan of action elaborated in the light of the detailed prediction must later be subjected to substantial modification. In any case a comprehensive, prior analysis of probable situations enables the commander more quickly to gain his bearings with regard to changes taking place and to find the optimal way out of complex situations.

At the same time, in predicting combat operations it is important not to drown in an abundance of facts (sometimes quite conflictive), and for this it is necessary skillfully to specify the range of matters to be studied, to isolate the main elements, which is of decisive significance in the given situation, that is, as Lenin stated, "to find at each specific moment that specific link in the chain which one must grasp with all one's might," and boldly to discard everything insignificant. Without this the commander may prove incapable of clearly and positively formulating his decision by the required deadline.

One must also be aware of the fact that decision-making under present-day conditions will be most frequently effected in an extremely limited time, and consequently a detailed analysis of the forthcoming process will many times be impossible.

Thus it is very difficult and sometimes impossible mentally to conduct an engagement model with identical completeness and depth of substantiation of

all processes which may take place in carrying out the mission. Therefore the commander, predicting combat operations and making a decision, will evidently be compelled initially to examine key elements determining the given process, within the bounds of the essential to present the basic plan of action and to perform preliminary calculations for utilization of men and equipment. After this (if time allows) he can continue refining his prediction and decision.

In such cases the commander's conclusion may naturally prove to be insufficiently reliable: certain presumable conclusion allowances are not eliminated in prediction. But they are inevitable when it is necessary mentally to picture an entire operation as a whole. It is important not to lose sight of details which determine employment of decisive weapons, particularly nuclear weapons.

Objectivity of data used in prediction. It is common knowledge that one and the same facts (circumstances) can be presented in different ways, for the most varied and primarily subjective reasons. Such diversity naturally has a greater range when facts pertain to military operations. This is due both to the complexity of interpretation of the combat process and to inadequacy of data on the enemy, difficulties in obtaining data, continuous mortal danger, etc. In addition prediction is connected with analysis of a bilaterally planned engagement, when the plans and actions of one of the parties are opposed by the intention and actions of the other, and each undertakes everything possible to deceive the adversary.

Under these conditions, for a correct prediction, it is particularly important for the commander to obtain the requisite data before the data assumes a specific emotional coloring from the individuals transmitting the information, and before all kinds of additions, frequently subjective, distort the essence of the matter. In the aim of greater conviction as to information reliability it is also important to gain a picture of the situation in which information was obtained and the persons transmitting this data. One of the fundamental means of increasing information reliability is strict distribution of responsibility for its acquisition and presentation.

Also of particular importance for objectivity of prediction is the most careful fulfillment of such a well-known demand as thoroughness of analysis of phenomena and total elimination of elements of underrating or overrating of the capabilities of the belligerent forces. A prediction of ensuing actions should be undertaken only when there is definiteness regarding the outcome of preceding actions. "In order to foresee the course of development of sequential breakdowns of operations," wrote M. N. Tukhachevskiy, "it is necessary first of all to know the outcome of the first, most difficult act..."[3]

It is no less important for prediction not to be based on some preconceived idea which predetermines the course of all succeeding arguments. This situation inevitably leads to a nonobjective assessment of facts: failure to accept or denial of those which contradict the given notion, and emphasis of what are perhaps secondary facts but which to some degree corroborate the advanced thesis. In this connection one recalls a statement by M. V. Frunze: "...Each and every Red commander must thoroughly realize that the most dangerous thing for us is routinism, being carried away with some specific pattern and some specific method."[4]

Nor should one forget in predicting that in practical activities it is difficult to achieve absolute perfection, and particularly in combat operations. Therefore our prediction will always differ substantially from the actual development of events. That which we wish to accomplish -- a specific march, maneuver, concentration of forces, the taking of a position or an attack on the enemy -- constitutes, as Clausewitz noted, a kind of ideal in relation to that which we can actually achieve.

A thorough understanding of these points forewarns a commander against extremely dangerous attempts to fit (adapt) the actual development of events to that model of combat operations which he has mentally created and which is desirable to him. This is particularly important when actions are being predicted which involve the employment of nuclear weapons, characteristic of which are rapid and abrupt situation changes, extraordinary flexibility in operations, and negation of many established points elaborated prior to the nuclear attack. Such a shortcoming can be manifested particularly in young commanders, to whom it frequently seems initially that they are capable of immediately seeing the general direction of the development of events, the core, so to say.

"A Red commander," stated Frunze, "should learn full mastery of that method of thinking and that art of phenomenon analysis provided by Marxist doctrine."[5] All sketchiness in thinking and blind adherence to prior-established views on various processes of probable combat operations should by their very nature be alien to prediction based on a knowledge of objective laws and dialectical-materialist analysis. Maximum flexibility of thinking, corresponding to the changing situation, is an essential condition for correct prediction.

Thorough knowledge of the adversary's basic operations techniques and (which is equally important) their possible changes, since known operations methods, particularly in a nuclear war, will apparently most frequently not be repeated, is essential for the acquisition of objective data and at the same time well-founded prediction. Actions will not be repeated not only because the adversary will avoid repetition but also in view of the unique nature of the conditions of combat operations. Each

engagement (operation) always takes place under specific conditions characteristic of it alone. One does not encounter two identical situations on the battle front.

Consequently a correct prediction of combat operations is possible only on the basis of a thorough understanding of the essence of the principles by which the adversary is guided and an understanding of why he acts in one way and not another. Without knowledge of the causes (roots, sources) of a plan, without a clear picture of the sociopolitical, moral and psychological countenance of the adversary, it is difficult to discover the direction of subsequent actions by the enemy, particularly in cases of abrupt change of initial plans.

Variants on the nature of possible enemy actions, which at first glance may seem unsubstantiated, should also be taken into account in prediction, taking guidance in the point that initially new knowledge constitutes conjecture. It appears prior to the time that its authenticity can be proven. An additional verification and comparison of facts are essential in such cases.

In light of the above it will be necessary to reverify some facts, to ignore others, and to accept still others as completely reliable. If it is impossible to verify questionable data, it is better not to utilize this data, filling the resulting gap in the prediction with extensive utilization of prior-accumulated information on the enemy.

The relationship between prediction and decision. Examination of this question, which is generally speaking not a new item, and perhaps the repetition of several well-known truths are dictated by practical necessity. The fact is that major studies conducted in recent years in the area of social forecasting have naturally been reflected in military affairs. As a particular example, the conclusion that prediction precedes decision could be perceived as a general conclusion and applied to commander work methods. We have a definite basis for affirming this thesis. As was correctly noted in the article by generals G. Semenov and V. Prokhorov, "the following work sequence has long since been established in practical training in commander decision-making: before making a decision (our underline -- D. S.) the commander should thoroughly understand the assigned mission, should assess the situation and predict possible situation changes."[6]

Although we have no intention of questioning the thesis that prediction precedes decision if it pertains, for example, to weapons and combat equipment development prospects and other such matters, we at the same time cannot agree with this thesis when it pertains to specific combat operations. Practical combat training, and particularly the wealth of

experience gained in the last war, persuasively demonstrate that prediction of a specific engagement or operation cannot provide the desired result if it is viewed solely as a precursor of decisions.

Prediction of a specific engagement and decision-making on its conduct constitute a unified commander mental process. Prediction consists in the final analysis in comparing the decisions of opposing sides, embodied by our imagination in specific actions. Each of the sides, bearing in mind the natural reaction which can be produced by its actions, at the same time seeks to ensure that the adversary's response actions fit within a desirable framework. The main thing in prediction is not only to establish the direction in which events will develop and the possible results, but also to determine under what conditions this development can and should proceed in the proper direction, what should be done to achieve this, what forces and means should be employed and in what sequence, whence, when and how they should be taken, etc.

We should be interested in the overall results of the engagement, battle, and operation, losses in men and equipment, as well as their distribution in place, time and affiliation. The commander will be capable of planning further troop operations only when he possesses an idea on who may be where, when and in what position during the course of an engagement (operation).

An answer to all these questions can be obtained if prediction of forthcoming actions and decision-making are effected simultaneously. In addition, prediction of combat operations does not terminate with an operation decision. It should and in practice does take place continuously during the course of the entire given engagement or operation. Prediction comprises the basis of particular decisions and the foundation of troop control in the engagement and operation.

Separation of prediction from accomplishment of a specific mission is also inconceivable because the mission (objective) itself constitutes the anticipated result of actions.

Finally, when it is clear what questions must be resolved and in what form answers to them must be obtained, as well as what initial data is available for this purpose, it is not difficult to select specific work methods. Clarity of the goal of forthcoming actions and concreteness of missions make the creative efforts of the commander in predicting a forthcoming engagement substantially more purposeful, organized and discipline his thinking. Maximum focusing of the commander's entire moral and physical resources, his will, knowledge, ability, that is, everything which constitutes an essential condition for successful activity, is manifested in such a case with maximum completeness and force. The more focused a

thought process, the more efficient and productive it is. Any wandering of prediction of the development of specific military operations within a framework abstracted from the decision, outside the specific goals pursued by the given actions, inevitably leads to extremely amorphous, multivariant conclusions, which are very difficult to utilize in decision-making. Under complex conditions they are capable only of confusing the commander. Abstractness of prediction of combat operations from the specific task and decision constitutes a fruitless undertaking. Lenin considered concreteness to be one of the conditions of scientific prediction. "It is impossible to comprehend anything in our struggle," he wrote, "if one does not study the specific circumstances of each battle" (Poln. Sobr. Soch., Volume 8, page 400).

As regards the sequence of predicting forthcoming operations, we are convinced that it has been rather precisely defined by many years of practical activity and has been specified in appropriate field manuals and service regulations as the general operational procedure taken by a commander in decision-making, in which everything which the prediction should encompass is expressed in concentrated form. Obviously it is essential not to forget this point, to understand it thoroughly and to utilize it intelligently.

We shall recall, at least in general form, some theses connected with this. First of all we shall note that prediction of forthcoming actions, just as decision-making, from which it is inseparable, begins with a briefing on the mission until it is fully comprehended. Clarifying what is to be done where, when and for what purpose, the commander at the very outset endeavors to see beyond these questions the specific executors and objects of actions, the conditions under which they will take place, as well as their possible character and results.

Carefully analyzing missions from beginning to end, the commander endeavors to examine the entire chain of future events and to gain a general picture of the operations. Of course this picture is still far from completion. Only initial sketches have been made on how key moments in development of the process may look.

Concretization of prediction continues in the following stage of the commander's work procedure -- in estimating the situation, when each individual element is analyzed in detail. Without examining the nature of the analysis proper, we shall merely emphasize the following major point. The most reliable prediction is possible only when each situation element is analyzed in juxtaposition with others, sequentially in time and space, tied into the solution of particular problems.

Prediction of the forthcoming engagement (operation) is formally completed when the commander announces his decision and assigns missions to his troops. Subsequent refinement is effected chiefly on the basis of those situation changes which will take place during the course of the engagement (operation) or in the interim between the time the decision is announced and the battle begins. It is particularly important to bear this in mind during situation prediction and decision-making to employ such a powerful weapon as a nuclear device.

It is assumed that probable events will be analyzed in a definite sequence, on a time and spatial development axis. Usually combat operations are predicted on the basis of the missions which will be carried out during the course of the engagement (operation). These missions can be viewed as steps in the prediction. The latter are determined in relation to the scale of combat operations and content of intermediate tasks. On the basis of the experience of the past war, for example, while commanders at the tactical echelon required a prediction for the taking of literally every trench in an operation to penetrate the enemy's defense, it was sometimes sufficient for the operational echelon to possess a picture of combat developments for positions as a whole or even for defense zones.

In other words, the size of the prediction step increases with the scope of intermediate missions and the relative level of the command echelon effecting the prediction, and vice versa.

Failure to observe this correspondence may lead to excessive complication of prediction or its lessened reliability. Unjustifiably short prediction steps lead to loss of perspective in the development of events, while excessively large steps may cause the commander to lose sight of elements which are of great importance for achieving the specified objective.

In the war prediction of the possible course of combat operations was usually effected sequentially on the basis of intermediate missions, on the basis of the accomplishment of which it was possible clearly to see the development of events in subordinate units no less than two echelons of command down. For example, in ground troops the division commander would construct his prediction in order clearly to see the actions of at least each battalion, while the regimental commander would go to the company level.

Tasks viewed as steps in prediction should also satisfy such a demand as securement of the requisite succession in transition from an analysis of actions in the performance of one to analysis of actions in the performance of another. This means that in each such problem there should be clearly visible the prospects of subsequent actions. Prediction of any particular mission will be close to the truth only if it is effected taking

into account accomplishment of the subsequent mission and is not locked within the framework of directly analyzed actions.

Therefore the commander endeavors to see troop operations at each stage in the light of favorable development of succeeding events and achievement of the objective of the operation (engagement). He proceeds from the position that it may prove not to be very difficult to find an optimal solution to each problem individually. But the obtained answer will hardly be acceptable. What is required is not a detached solution but one which is fully coordinated with the solution to other problems (tasks) of the operation. Precisely such coordination makes the prediction more reliable and the solution optimal. The commander takes all necessary steps in order clearly to picture not only that which must be done after accomplishing the given mission but also the manpower and equipment requisite to accomplish the task, the possibility of promptly forming new forces out of them, and methods of operation in accomplishing the succeeding mission. In advancing any partial objective, the strategist should bear in mind all the consequences of achieving that objective and the linking effect it will exert on the subsequent course of events, wrote Professor A. A. Svechin in his book Strategiya (Strategy). Everything is aimed in the final analysis at finding optimal methods of accomplishing the task on the way to achieving the objective of the engagement (operation).

Also of considerable importance in determining the prediction step is consideration of the following point: the probability of the nature of forthcoming actions increases with a reduction in the period of their implementation, since time restriction reduces the volume of potential situation changes.

An extremely important role is played by simplicity and clarity of predicted tasks as well as the commander's conviction that his subordinates will understand and be able to carry out the maneuver he proposes. "It is necessary to conceive and organize an operation in such a manner," stated Mar M. N. Tukhachevskiy, "that each particular mission on the main axis will be simple and not difficult."[7] As if clarifying this point, Svechin writes that "any superfluous maneuver, any engagement which is not essential to achieve the objective of the operation carries within itself the greatest danger -- that of diverting us away from the goal onto a false path... There should be nothing superfluous in the operation; it should serve as an embodiment of purposefulness."[8]

Such an approach to prediction of combat operations can evidently be essentially retained in the future, but the fundamental stipulation that intermediate missions under conditions where nuclear weapons will constitute the principal means of destroying the enemy will not necessarily

involve the advance of troops and the capture of specific lines (areas), as was the case in the past.

For a correct understanding of the character and sequence of the commander's work process in predicting combat operations it is also advisable, in our opinion, to realize that the adoption of a decision on the engagement (operation) cannot be viewed chiefly as its selection from numerous decisions fully determined in the course of mission briefing and situation estimate. If such a situation is not eliminated, it is sooner a result of the fact that not all elements were sufficiently thoroughly and comprehensively examined in the course of situation analysis, and the commander was unable right up to the last moment in the decision-making process to reach those well-founded intermediate conclusions which should form the basis of the decision and determine its content. Otherwise the decision is formed through selection of its component elements as they are sequentially studied. In principle, in completing his briefing on the mission and situation estimate, the commander should have a single decision variant. This is objectively dictated and essential from a practical standpoint.

Speaking of the objective conditionality of this thesis, we proceed from the position that the decision is essentially a reflection of objective reality; it is dictated by the situation proper. And since the situation is quite specific and unequivocal in each instance, with the same criteria of the optimal, a decision cannot and should not be multivariant.

There will always be one best or optimal decision on the basis of each of the specified criteria as well as on the basis of all criteria together.

If the criteria of the optimal differ, we are in practice dealing with non-identical conditions of problem-solving, or to put it more specifically, we are dealing essentially with different problems. Different problems of course require different solutions. But these are no longer variants of a single action but rather independent solutions.

Is it possible, for example, to view as variants of a single solution those whereby the first is based on maximum economy of means at the expense of time of conduct of the operation, while the second is based on achievement of the goal of the operation as quickly as possible, which of course will require a greater expenditure of men and materiel?

It is our conviction that these are not at all two variant solutions to a single problem, for a choice cannot be made between them, since we are dealing with totally different intentions which could not be given simultaneously in the problem, as excluding one another. But since one of these demands is put forward in advance, there is no need to seek a solution which satisfies the second demand.

Thus the idea of the multivariant nature of solutions apparently is caused by the fact that solutions to problems which are essentially different but which on the surface appear as one are taken as variants of solution to a single problem.

Consequently the appearance of multivariant solutions to one and the same problem at the final stage of decision-making can be eliminated with a deeper penetration into the essence of the problem being examined and its comprehensive analysis.

Reference to the fact that multivariant decision most frequently does not depend on the commander but is rather the consequence of the adversary diverging in his plans and actions from the optimum can hardly be accepted as fundamental. Clausewitz stated that he who takes the enemy by surprise with an unsuccessful unexpected action, in place of success risks deserved defeat. Therefore if the adversary has for any reason adopted a variant of action which is less favorable to himself, in such a case there is no need to reexamine an optimal decision which has already been reached. It essentially ensures the requisite direction of combat operations. The decision is refined while retaining the same perspective.

If in the final analysis the elaborated decision does not satisfy the commander, the question posed is not that of replacing it with another ready solution (such a situation is possible only as a consequence of the commander's total failure to comprehend the assigned mission or ignorance of the situation) but rather refinement of the selection of its component elements.

The presence of precisely one decision variant is also of great practical significance. It convinces subordinates of its correctness, instills confidence as to the expediency of the actions being undertaken, and gives actions more comprehension and initiative. Firmness and decisiveness of actions are possible only when they are definite. This is what is primarily necessary for victory, and particularly in a nuclear war.

In conclusion we should like to note the following.

In predicting combat operations it is essential to keep constantly in mind that a unity of military theory and practice is reached on the battlefield, in combat operations. Here not only well-known theoretical points are applied, but new methods and forms of conducting combat operations are elaborated and their development trends revealed. Therefore the degree of reliability of prediction will depend in large measure on the extent to which the commander succeeds in taking into account the above-specified trends, in determining the depth and time of possible changes in the forms and methods of combat operations. And this is possible only under the

condition of adequate commander theoretical training, his knowledge of the history of the art of warfare, and his ability thoroughly to analyze amassed combat experience.

The results of prediction will depend to a decisive extent on a commander's ability to organize the prediction efforts of his immediate assistants. It is important in the final analysis to ensure that the commander has at his disposal at all times everything that is necessary for independent prediction of forthcoming actions and for reaching an optimal decision. Without extreme necessity it is not advisable to involve subordinates in his personal work of constructing a model of the future actions with all its contradictions and doubts. One should not transform prediction efforts into a debate society and hope that a decision will be reached in the course of receiving information from subordinates. When consulting with subordinates the commander must have his own point of view on the matter in question. In spite of the increased role of effort by entire teams (primarily staffs under army conditions) in scientific prediction, the final engagement (operation) decision is made by the commander alone.

In constructing a model of a forthcoming engagement it is necessary most painstakingly to analyze the situation which may develop as the opposing sides engage additional men and weapons. Particularly meriting attention is an estimate of changes in the correlation of forces as a most important factor determining the development of combat operations. Here it is important not to permit a mechanical approach to problem-solving, not to reduce the problem to a comparison of the capabilities of the newly-committed forces, since the overall capabilities of the two sides are not directly dependent on the quantity and quality of the committed forces. This relationship is more complex in character.[9]

Acquisition of a correct prediction in such cases demands that in estimating the correlation of capabilities of the two sides with the engagement of reserves, one takes into account all the manpower and weapons of the two sides as an aggregate, that is, the capabilities of those forces already in action and the newly-committed forces should be viewed as a whole, so that the increase in force capabilities is estimated as an incremented result of their employment. Failure to take this into consideration inevitably leads to a situation whereby the overall picture of situation changes takes on a distorted form.

It is also necessary carefully to consider the following point. In comparing the capabilities of the two sides when predicting combat operations, as a rule one assesses friendly troops fairly completely, while hostile troops are frequently estimated on the basis of incomplete data. As a result there develops a certain disparity in approach to a comparison of the sides. Obviously in order to prevent this disparity from becoming

excessive and leading to erroneous conclusions, making the overall prediction meaningless, it is necessary to introduce into the computation of correlation of forces an appropriate correction factor. Its magnitude can be determined on the basis of experience, taking into account realistic intelligence capability and the adversary's ability to conceal his true position and intentions.

In order for prediction of the course of combat operations to be sufficiently detailed, the commander effecting the prediction requires not only well-systematized knowledge but also practical skills in troop control. This is achieved only as a result of regular practice solving appropriate tactical and operational problems. A deficiency in such practice drills is not compensated by an increase in knowledge on theory of military art. In order to obtain a true picture of combat it is necessary not only to be well prepared theoretically but also to possess considerable practical experience, to learn a thorough feel of combat. Prediction capabilities are developed in the course of active mastery of the art of warfare.

The ability of officers to predict the operational and tactical situation must be constantly developed and perfected. Officers must be effectively taught this skill, first and foremost at military training establishments. An important role in the acquisition of requisite knowledge and skills in prediction, in addition to direct practical experience in troop control, is played by critiques of exercises and war games, during which trainees become acquainted with specific prediction techniques, and the ability to isolate the most important, substantial, repetitive and essential relations from the great diversity of elements, and to reduce the results of situation analysis to a simple objective of interrelated phenomena. Requisite assistance to officers in this effort can also be offered by well-organized critiques of the most instructive operations of the last war.

FOOTNOTES

1. Of the published studies on this problem, we should mention the following: M. V. Zakharov: O nauchnom podkhode k rukovodstvu voyskami (A Scientific Approach to Troop Control), Voyenizdat, 1967; Metodologicheskiye problemy voyennoy teorii i praktiki (Methodological Problems of Military Theory and Practice), Second Edition, Voyenizdat, 1969 (the section "Methodological Problems of Troop Control," pp 382-402); L. Kutsev: Matematika v boyu (Mathematics in Combat), Voyenizdat, 1969 (the section "Statistics and Probability," pp 16-27). Following are some of the most important articles on this subject: M. Shokurov and O. Orlov: "To Control Means to Predict" (Krasnaya Zvezda, 15 September 1967), as well as the following articles published in the journal

Voyennaya Mysl': V. Trofimov and G. Kadomtsev: "Methodology of Scientific Prediction" (No 2, 1967); V. Konoplev: "Leninist Methodology of Scientific Prediction" (No 7, 1969); L. Yemel'yanov: "Scientific Principles of Decision-Making" (No 10, 1969); G. Semenov and V. Prokhorov: "Methodology of Decision-Making" (No 9, 1970).

2. In conformity with the definitions given in the Great Soviet Encyclopedia, in this article we shall not make a distinction between the terms "prognoz" [prediction, prognosis, forecast] and "predvideniye" [foresight, prediction].

3. M. N. Tukhachevskiy: Izbrannyye proizvedeniya (Selected Writings), Volume I, Voyenizdat, 1964, page 186.

4. M. V. Frunze: Izbrannyye proizvedeniya (Selected Writings), Volume 2, Voyenizdat, 1957, page 47.

5. Ibid.

6. Voyennaya Mysl', No 9, 1970, page 37.

7. Tukhachevskiy, op.cit., Volume 1, page 186.

8. A. Svechin: Strategiya (Strategy), Izd. Voyennyy vestnik, 1926, page 312.

9. This subject is treated in greater detail in the article "Stepping Up Effort in Operations in a Nuclear War," Voyennaya Mysl', No 10, 1968.

BASIC TRENDS IN THE ORGANIZATIONAL DEVELOPMENT AND EMPLOYMENT OF ARMY AVIATION[1]

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In the opinion of foreign military experts, fire and mobility are the fundamental distinctive features of modern combat. But while substantial success has been achieved in increasing firepower in the majority of the world's armies, success in increasing troop mobility has been limited indeed.

As is indicated in the press, the modern motorized infantry division of the FRG can deliver on the enemy five times as much ammunition as its predecessor of World War II. At the same time the mobility of such a division has been increased by only 25 percent.

The rate of troop movement on land has approached its limit, and although the capability of means of transport to surmount various obstacles has increased, it does not yet fully meet the demands of maneuver and engagement. The movement of troops by air constituted an intelligent means of increasing both rate of movement and ability to cross obstacles. Thus the idea of airmobile troops was born.

The range of missions performed with the aid of helicopters and light aircraft is steadily broadening, the number of these vehicles in the troops is increasing, and today nobody any longer doubts the expediency of possessing ground forces aviation. In different countries, depending on tradition and certain differences in missions handled, aviation constituting an independent arm within the framework of ground forces is called either army [armeyskaya] (USA, Great Britain) or ground troops [voyskovaya] (FRG).

Commanders of ground forces units and large units have become convinced of the advantages of conducting combat operations involving rotary-wing and fixed-wing aircraft subunits. The U.S. Army chief of staff notes that "the most important lesson of the war in Vietnam, from the standpoint of U.S. Armed Forces organizational development, is discovery of the role of the helicopter on the battlefield. Extensive employment of these aircraft gives ground troops qualitatively new tactical mobility."[2] Ground forces command personnel now have the capability of utilizing aviation as the same kind of weapon as tanks and artillery.

Quite a few nations possess large numbers of helicopters. In the United States, for example, according to figures as of mid-1970, 34 percent (11,276) of the 34,014 fixed-wing and rotary-wing aircraft possessed by the armed forces were in the ground troops, while 25 percent were in the

navy. The role of army aviation will unquestionably become even more important in the future.

Many factors influence the forming of concepts of organizational development of army aviation: tradition, technological advances, change in the character of combat, etc.

Today, in the opinion of foreign military experts, the organizational structure of army aviation should satisfy the following demands:

ease of control on the ground and in the air, centralized and decentralized control and capability of rapid shift from one form to another; high reliability of unit (subunit) control;

capability of maximum effective, fast accomplishment of missions, in conformity with purpose and character of employment of rotary-wing and fixed-wing aircraft and methods of combat operations;

invariability of unit (subunit) organization in peace and wartime; easy transition from peacetime to war footing (without preliminary reorganization);

securement of a high degree of constant readiness to undertake surprise combat operations with the full manpower of the unit (subunit); maximum reduction of time required to ready subunits and aircrews for initial and subsequent flights;

flexibility and rapid adaptability to any situation (for example, when replacing equipment), capability of assigning individual subunits to perform other missions without disrupting integrity of the unit;

high degree of maneuverability, capability of relocation with simultaneous performance of combat missions; sufficient survivability, capability of extended independent combat operations (by crews of rotary-wing and fixed-wing aircraft, control and special support entities).

Great importance is attached to efficient basing of army aviation, ensuring favorable conditions for achieving a high degree of combat readiness, reliability of control, convenience in conducting combat operations and organization of coordinated efforts with ground units and subunits, as well as reduction of threat of being hit while on the ground. It should offer the possibility of personal contact between commanders of army aviation units and subunits and commanders of coordinating ground troops units and subunits.

The organizational structure of army aviation should also make it possible effectively to perform missions which vary greatly in nature, from the transport of men and equipment or air rescue operations to fire support. One must bear in mind thereby that army aviation will be forced to carry a substantial load in terms of rotary-wing or fixed-wing aircraft sorties per day.

Of course the above-enumerated demands have been taken into account with a varying degree of completeness in the various countries, in resolving problems of organizational structure of army aviation. Historically army aviation organizational development has proceeded in two stages. At the first stage separate small subunits (sections, detachments, squadrons) would be attached to ground troops units and subunits and would later be made organic. At the second stage the number of ground troops rotary-wing and fixed-wing aircraft would be increased, with a broadening of the range of missions handled by them, and army aviation would be specified as a separate ground forces arm; there would develop the vital necessity of organizing larger army aviation units, as well as the necessity of centralized control of those units.

The organic incorporation of helicopter subunits in battalions, brigades and even divisions made their massed employment more difficult. Therefore helicopters and light aircraft began to be consolidated into regiments and brigades operating in the interests of army corps and field armies. In many of the world's armies and the American army in particular, army aviation almost totally adopts ground forces organization: platoons (6-8 helicopters each), companies (up to 30 helicopters), battalions (150-180 helicopters), groups (600-700 helicopters), and brigade (up to 1200-1400 helicopters).

Tendencies toward enlargement of army aviation units are also noted in the armies of Great Britain and the FRG. In the former it is planned to maintain in each division an army aviation regiment consisting of brigade squadrons (formerly regiments contained small helicopter detachments), while in the latter it is planned to place in each army corps two army aviation regiments: a regiment of light (40 UH-1D) and a regiment of heavy (32 CH-53) transport helicopters.

Army aviation directorates are being organized within the framework of ground forces headquarters in connection with the establishment of army aviation as an independent arm. These directorates are assigned the tasks of aviation organizational development, unit organization, and personnel combat training. Also under their supervision are training centers and schools at which army aviation cadres are trained. The United States, Great Britain and the FRG have organized in the ground forces army aviation directorates, training centers and schools.

Thus the main trend in organizational development of army aviation is its establishment as an independent ground forces arm and removal of helicopter subunits from an organic status in ground forces units, with subsequent centralized subordination to higher command echelons. It is believed that this will ensure better control and flexibility in its combat utilization, will increase combat readiness and facilitate maintenance.

Aside from the need to increase ground troops mobility, the growth and consolidation of army aviation are dictated by other factors as well.

It is a well-known fact that air forces are capable of offering efficient close support to ground troops under the condition of a certain freedom of action, that is, when control of the air has been secured. It is precisely for this reason that at the initiation of combat operations air forces are assigned the mission of gaining control of the air either with all or the bulk of their capability; they will be able to offer close support of ground troops only with the smaller part of their capability.

Therefore the endeavor on the part of the ground forces command to plan for themselves, independent of the air forces, a certain minimum of forces for close air support, that is, to assign this mission to army aviation, becomes understandable.

The endeavor to accomplish these two missions sequentially or simultaneously also finds expression in the organizational structure of the armed forces of a number of countries. For example, the air force of the FRG contains special aviation units designated primarily for close air support -- so-called light combat aviation squadrons, employing type G91 aircraft. The arrangement is the same in the British air force, where this mission will be accomplished by the now-operational Harrier light VTOL aircraft. The air forces of a number of other countries, however, contain tactical fighters of a single type (for example, in the U.S. and French air forces).

It is believed that the presence in the ground forces of a sufficiently potent army aviation will ensure the capability of gaining the element of surprise, will increase flexibility, particularly at the initial stage of penetration of enemy defense, will make it possible to hit the enemy's flanks, to shift attacks from one axis to another, and to seize important ground.

American military leaders believe that ground forces divisions equipped with helicopters and armed with lightened weapons (airmobile divisions) are able to operate most successfully in a war with the employment of nuclear weapons. In nonnuclear combat operations they are allegedly capable of developing a successful attack and pursuing the enemy, even in

Europe, separating and destroying withdrawing enemy units with swift, surprise attacks. The insufficient firepower of these divisions is compensated for by the employment of a battalion of fire support helicopters.

At NATO headquarters they are discussing the question of forming two airmobile divisions within the framework of the joint armed forces of this aggressive military coalition, made up of British and West German ground troops equipped with U.S. rotary-wing and fixed-wing aircraft. A detailed preliminary study has been made on the capabilities of army aviation at NATO troop and staff exercises.[3]

In the more distant future (15 years and more) it is planned to employ airspace to achieve a sharp increase in the mobility of armored troops as well. It is anticipated that technological advances by that time will make it possible to build a unique flying tank capable of quickly changing its speed and direction of movement, and of fighting both on the ground and in the air. Armored troops equipped with these vehicles will be extremely mobile and will fairly fully correspond to the conditions of nuclear warfare. A prerequisite for the development of such vehicles is a synthesis of advances in tank engineering, development of all-terrain vehicles, aircushion vehicles and advances in rotary-wing and fixed-wing aircraft design.

One can already note an effort to equip ground troops with heavy helicopters boasting a load capacity of up to 23-25 tons, to equip all helicopters with IFR navigation gear, to reduce their vulnerability by armor-plating crew spaces and critical structural elements, filling fuel tanks with inert gases. In addition, the United States plans to build a fully-armored reconnaissance helicopter of prismatic shape (the AARV project). The combination of wing airfoil and rotor is finding increasing utilization, a combination which increases maximum speed. In-air refueling of helicopters from other rotary-wing and fixed-wing aircraft, as well as from naval vessels, is being successfully mastered. Tests are being conducted on the towing of light rescue helicopters by tactical fighters. This will ensure cover to the helicopter against hostile fighter attack during aircrew rescue operations. Helicopter-fired air-to-air missiles are being tested against high-speed aerial targets with the same objective in mind.

The principal demands imposed on army aviation fixed-wing aircraft include compact size and armor protection for crew spaces and other critical points. Combat experience in Vietnam indicates that the size of an aircraft substantially affects the probability of a hit by ground fire.

The greatest debate in the press pertains to trends in utilization of army aviation for the purpose of close support of ground troops and delivery of fire on ground targets. The fact is that a substantial shortcoming of

combat employment of tactical air power in close support missions is the substantial time lag between the request from ground troops subunits and units and the time aircraft actually take off. At best at least 50 minutes are required between the request for tactical air support and the time the target is attacked, in the case of F-4 aircraft based 90 km from target. The situation does not improve even if the aircraft involved are Harrier VTOL aircraft situated directly in the deployment position of the supported ground troops, for time savings do not exceed 5 minutes. Consequently, most of the time is spent on the request passing through the various ground forces and air force channels.

Time from request to air strike diminishes substantially if available army aviation includes helicopter gunships capable of offering close air support which is limited in scope and depth. This corresponds to the greatest degree to the demands of ground troops unit commanders.

A unique imprint on elaboration of army aviation combat tactics on the European continent is made by potential aircraft losses from massed anti-aircraft fire. For purposes of comparison we should note that even under the conditions of Southeast Asia the Americans lost approximately 4100 helicopters in the air and on the ground (figures as of September 1970).

The following are considered abroad to be the basic trends in combat employment of army aviation, taking the above into account: utilization primarily at extremely low altitudes above both friendly and hostile territory; employment of typically helicopter tactics in attacking ground targets; increased centralization of planning and combat employment of army aviation air power.

Let us examine these features in greater detail.

In the first place, when flying at low altitude over friendly territory, aircraft will less frequently be attacked by hostile fighters, which tend to patrol airspace over enemy territory. Helicopter routes of flight should avoid roads, showing preference to terrain offering natural screen.

Over hostile territory helicopters will fly particularly low and in many cases will approach the objective at a height of 3-4 meters above ground or treetop level. When flying over terrain heavily defended by antiaircraft weapons it is desirable to employ smoke screens, which are laid out either by air-force aircraft or by artillery.

Secondly, in the opinion of foreign military experts it would be incorrect for helicopter gunships to employ the fixed-wing aircraft technique of attacking targets: delivering fire while flying at the target. This technique

should be employed only in exceptional cases. Fixed-wing aircraft during attack close on the target, most frequently diving at it, which is dangerous even for high-speed aircraft but fatal for helicopters. Helicopters combine excellent maneuverability, swiftness of reaction and good firepower capabilities. Their tactics should be based on these advantages.

When attacking forward tank and motorized infantry units and subunits helicopters employ hovering configuration. In addition, they can deliver fire while moving away from the enemy. The most important and determining element in helicopter air strikes against targets in forward defense positions is their utilization of natural cover (hills, trees, buildings). A helicopter should not expose itself above the terrain in hovering configuration for a period of more than 10 seconds -- that time required by an antiaircraft weapon crew to open aimed fire. If a helicopter reappears to obtain a more precise bearing on the target or to deliver fire, it should be from another direction, unexpected to the enemy, optimally from the target's flank.

Taking into account the element of attack surprise as well as the effective range of ground troops light antiaircraft weapons (1000-1500 meters), an effort is made to arm army helicopters with long-range weapons (in excess of 2000 meters). Close-support aircraft should always operate simultaneously with ground troops. Air strikes are closely coordinated with the ground combat and sequence of employment of artillery, tanks, and antiaircraft weapons.

Helicopter survivability can be improved even for operations in the European theater, when ground troops are provided cover by fighter-interceptors, with intelligent selection of targets for air strikes, and with precise organization of coordination with artillery (establishment of barrage fire and smoke screens). Helicopter pilots and gunners must be able to conduct battlefield observation, to spot and identify, estimate and destroy targets instantly, and to shift rapidly from hovering to horizontal flight and vice versa. For increased survivability on the ground, helicopters should be able to move expeditiously, even on soft ground, into sheltered positions (rotor blades folded).

In the third place, American military leaders believe that the lack of centralized control of a large number of army aviation subunits has constituted one of the main reasons for their inefficient utilization. Of course the main reason for American troop losses is the excellent combat performance, self-sacrifice and dedication to the homeland on the part of the fighting men of the South Vietnam National Liberation Front, but army aviation operations on the basis of small subunits, without extensive and comprehensive support, also increased American losses.

Any mission requiring contact with the enemy can be accomplished only after careful preparation, taking into account the combat capabilities of artillery, tanks and tactical fighters. It is believed that this is possible only with centralized planning of combined combat operations by ground troops and army aviation.

On the whole ground troops supported by army aviation have improved maneuverability, greater capability to achieve surprise, can be rapidly concentrated and dispersed, and are capable of surmounting all obstacles, offering limited close air support and mounting airborne tactical assaults. There is also facilitation in organizing combat operations on several axes, conducting aerial reconnaissance, combat security, etc.

But all these advantages can be implemented only in decent flying weather, under conditions of relatively good visibility, and over hostile territory only when the enemy possesses a weak air defense system. Regardless of whether or not there is organic air power available, ground troops will continue in the future to have a substantial need of close fighter-bomber support.

Many foreign military leaders believe that army aviation will exert substantial influence on organizational development of the armies of the future, reducing their dependence on a large array of ground transport vehicles, ground equipment, ready stores of weapons, rations, fuel and other supplies, and will increase flexibility of fire and provide an increased element of surprise in ground troops attacks.

FOOTNOTES

1. From materials in the foreign press.

2. U.S. News and World Report, 29 September 1969.

3. Voyennyy Zarubezhnik, No 11, 1970, page 18.

DEVELOPMENT OF A THEORY OF TROOP CONTROL

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Development of a theory of control of various systems (technical, biological, economic, social and others) is one of the most vital problems in science today. A large number of pamphlets and articles have been written on troop control as a component part of this general problem. The journal Voyennaya Mysl' also devotes much attention to problems of control.[1] Articles published in this journal in recent years have examined the possibilities of utilizing the latest advances in the exact sciences, cybernetics in particular, with the aim of creating a general theory of troop control.

Practical implementation of every new theory as a rule leads not only to the development and adoption of technical devices but also to changes in the character of thinking and manner of action in achieving end objectives. This applies particularly to the extensive automation of control processes in all areas of human activity, which is taking place under conditions of the scientific and technological revolution. Therefore success in the creation and practical adoption of modern methods of troop control depends to a substantial degree on a thorough understanding by officers of those changes which are being produced in all areas of their activities by a cybernetic approach to examination of the processes of control of the functioning of military collectives. For this it is important in particular to assimilate the essence of such concepts as systems analysis, controlled circuit, feedback, hierarchy of controlled circuits, adaptation, learning and teachability, control process dynamics, simulation, algorithmization, goal setting in the control process, etc.

Bearing in mind the above as well as a discussion on the relationship between theory of troop control and other components of military science initiated in an article by Maj Gen Engr-Tech Serv A. Tatarchenko,[2] it seems advisable to discuss several general problems of theory of troop control.

Success of control is determined to a large degree by skill in selection. As a result of this, in the initial stages of establishment of a science of troop control the impression was formed that this problem can be solved by operations research methods. It is true that one of the problems solved by these methods is optimal decision-making. Operations research as a scientific discipline, however, is not connected with a specific object. It can examine quite diversified problems. The only thing which links them is the method of approaching an examination of various problems. Therefore when one speaks of operations research methods one has in mind

a unified approach, not object. A once-elaborated method of problem solving, such as the problem of selecting an optimal route, makes it possible to perform various calculations connected either with air traffic along a route or with movement of a workpiece during machining on numerous machine tools, or with the movement of large troop units.

Operations research offers the opportunity to elucidate the deep analogy between many processes which would seem to be totally different. As a result of such an approach to phenomena it has been established that all actions performed by persons or the equipment they control, regardless of specific content, can be represented as standard problems of selection of optimal goals, optimization of the goal-attainment process, and optimal distribution of available means for goal attainment. The system of these problems has not yet been completely defined, although many of them have already been studied and systematized. Special mathematical disciplines have been created for solving these problems: mathematical programming, information theory, theory of mass servicing, etc. Thus operations research can be defined as an aggregate of methods for solving problems of a certain class.

There is also a group of problems whose optimal solution must be sought in the presence of opposing interests. These problems are dealt with by an independent scientific discipline -- theory of games, which describes actions which develop in conflict situations. Solution to these problems is considerably complicated if one must operate under conditions of incomplete information, that is when distribution of probabilities that the adversary will employ his possible strategies (countermeasures hindering the achievement of our goals) is unknown, or under conditions of simulation of the adversary's intellectual activity (a simple example is calculation of a variant in a chess game). The latter problems are called reflex games, the methods of solving which are still in the initial stage of development. Extremely interesting in this respect are articles by Col Gen V. Druzhinin and Engr-Col D. Kontorov, which examine the methodology of solving routine problems in nonrepeating conflict situations.[3]

In general form methods of seeking optimal decisions under various conditions comprise theory of decisions. The basic task of this theory is selection of possible optimal decision alternatives. If one examines decisions from an economic standpoint, assesses their consequences, takes into consideration the psychological aspect not only of the decisions but also the psychology of those who make them, then obviously theory of decisions is considerably broader than the decision proper. Therefore theory of infinite, antagonistic, differential, reflexive and other games is merely an element of a more general theory -- theory of decisions, which quite obviously is entitled to independence as a scientific discipline.

It is evident from the above that both operations research and theory of decisions are not connected with a specific object. They comprise a set of methods for solving a specific range of problems and can in turn be examined only as applied mathematical disciplines.

We know that cybernetics as a science studies processes of control and links in mechanisms, organisms and society, that is, in controlled systems which are different in substance but homogeneous in structure (a system is an aggregate of elements united by a common goal). Many processes of control, however, such as in a system consisting of machines and groups of persons, do not fit into this "rigid" pattern. A characteristic feature of a system which includes homogeneous elements is the presence in this system of a substantial number of isolated (separable) parts, the internal relations (energy, information, etc) among these parts and external links with other systems. In spite of the great functional difference among the elements of a given system (men, tanks, missiles, communications equipment, etc), in examining the system it is necessary to consider first and foremost the fact that the activity of each separate part of the system exerts a specific influence on the functioning of all other parts.

In order to assess any decision within the framework of such an organizational structure it is necessary to determine all substantial interrelations, taking into consideration the effect on them of the decision made and the behavior of this entire organization as a unified whole. Such an aggregate of functionally heterogeneous elements unified by a common goal of functioning has in cybernetics been given the name "large system," and the method of its study -- "systems approach."

The term "large system" was not introduced for the purpose of classifying systems (into "large" and "small") but rather for isolating a special method of examining the behavior of controlled systems, ensuring consideration of the entire complexity inherent in them. A distinctive feature of this method is study of the system taking into account close interaction among the large number of factors determining its behavior.

Obviously military units, which comprise an aggregate of men and equipment functioning as a unified organism for the achievement of a specific goal in an engagement, operation and in a war as a whole, correspond to the classification established in cybernetics for "large systems."

The general theory of "large systems" is just beginning to be developed; its basic concepts and terminology have not yet been established. But even if this theory were elaborated, its application to solve problems of troop control would encounter the usual difficulties. The fact is that the "large systems" with which military science deals differ substantially from the "large systems" examined in cybernetics.

The army as a controlled system is established to combat an opposing system -- the adversary's army. Their interests are opposed. Therefore control entities, endeavoring to improve the functioning of their system, will elaborate commands which are as "unpleasant" as possible for the alien system. As has been stated, in cybernetics such situations are called conflict situations.

The task of system control in a conflict situation consists primarily in elaborating reactions to situations forming in the process of combat. Their effectiveness depends on the availability of information on behavior of the adversary's system. In contrast to information which is obtained from systems and subsystems functioning in interaction with the given system (from the men and materiel of individual subunits, such as regiment, division, etc), information on the adversary is acquired by active effort on the part of the system under examination. Therefore special elements are provided in the process of the forming of a system's structure (military collective for achieving a specific objective in an operation); the task of these elements consists in acquiring information on the behavior of the adversary's system.

Consequently the existence of an "intelligent opponent" with opposite interests substantially alters the approach to determination of the system's structure. As a rule situations arise where the success of its functioning (result of the actions of the military collective) will depend on the quality of acquired information. This leads to a situation whereby a considerable portion of the system's resources is diverted for the securing of requisite information on the opponent, that is, on the conduct of reconnaissance. The goal of this latter is to create a sufficient density of observation in the combat area in order to secure the requisite volume of information in the interest of the troops throughout the entire operation. Thus methods of forming the structure of a "large system" designed for the conduct of combat operations, as well as the elaboration of patterns (algorithms) for controlling the processes of its functioning, will substantially differ from technical, biological, economic, social and other "large systems" which are presently examined within the bounds of cybernetics. The development of military cybernetics permits us to assume that the time has evidently come to designate as an independent scientific discipline that area dealing with investigation of the conditions of functioning of "large systems" in the interest of information acquisition (intelligence gathering, reconnaissance).

The process of control of a "large system" also possesses appreciable peculiarities.

As is well known, the commander's decision presupposes a certain sequence of goal-directed actions taken for realization and securing attainment of the stated goal. Consequently control can be viewed as a process of elaboration of a plan (plan of operation) and measures securing its implementation.

An article by Lt Gen G. Semenov and Maj Gen V. Prokhorov presents in detail the methodology of the commander's decision-making in planning an operation. They note that "it would be absurd to claim that the commander in his decision can foresee all details of combat operations. In the process of conducting combat operations it will without question be necessary to perfect and refine the elaborated operation plan, to bring it into conformity with the actual situation as it takes form, and to assign new or supplementary missions to the troops."[4] Analyzing the features of the commander's mental activity, Col V. Ofitserov laconically described them as "resolution of tasks of varying scale under conditions of a shortage of information and time."[5]

Let us examine in greater detail how these features affect the content of the troop control process in the course of combat operations.

The commander's decision is followed by concrete actions which have specific consequences, which in turn produce changes in the conditions of task execution. Thus there appears the characteristic effect of feedback, expressed in the form of a flow of information on the controlled object, the environment and the control system proper. As it is collected, the aggregate of incoming data (status information) is transformed into an aggregate of orders and commands (control information). Consequently control is based on a process of conversion of condition information into control information.

In practice the flow of condition information is discrete in nature, that is, information arrives with certain, unequal, in the general case, time intervals. The conditions of problem solution can be considered fixed for any given moment in time. This makes it possible to adopt a so-called static solution and to initiate its implementation prior to arrival of the next batch of status information. The aggregate of static decisions with reaction in time can be called dynamic decision. Dynamic decision comprises the basis of control.

We shall note that if at the initiation of decision implementation feedback is disrupted, that is, status information is not coming in or is not processed, the dynamic decision becomes static: the adopted plan of action for the operation will be carried out without reaction in time. In short, as soon as the process of status information input is disrupted, the control entity will be deprived of the capability of making a correct decision.

As status information comes in it is processed with the aim of either leaving unchanged a decision made at the preceding stage (to continue to carry out a specified aggregate of actions) or to introduce corrections into the decision (that is, in the adopted sequence of actions to alter their sequence or to replace one or several actions with others) or, finally, to adopt a new decision (to elaborate a new set of actions).

The process of decision-making with reaction in time, that is, the process of control of a dynamic system (military unit), possesses significant features. First of all continuous acquisition of status information is essential for providing control. Second, quantitative substantiation of the operation concept (plan), taking incoming information into account, can be effected most fully only under conditions of the functioning of an automated control system based on computers. We shall discuss the latter feature in somewhat greater detail.

In the absence of automated control systems, the conduct of an operation is normally preceded by an intensive staff effort which can involve hours, days or even months. This depends on the scale of the forthcoming operation and is due to the necessity of examining all areas and directions of operation development, of estimating quantitatively possible decision variants and making the most expedient decision, that is, the one which leads to the final objective with the least expenditure of effort. After the operation has been initiated, the first information to come in may be such that it will be necessary substantially to revise the entire operation plan or at least to estimate what will occur if it is carried out on the basis of the earlier elaborated plan. How is this done on a real-time scale?

In order to reach a new decision (or to refine a previous decision) it is necessary to repeat on full scale (in some cases even more) the staff effort which was carried out at the operation planning stage. In order to carry out all calculations, as much time is required as was spent in preparing for the operation. The commander does not have this capability during the process of the operation. As a result he will be compelled to make a decision without preliminary staff effort, guided by that which M. V. Frunze called "special, specific qualities. The most important of these is so-called intuition, the ability quickly to grasp situation phenomena in their entire complexity, to focus on the most important element and, taking this fundamental element into consideration, to outline a specific combat and work plan."[6] It is a good thing if the commander possesses such intuition and it assists him in arriving at the correct decision. But this may also not be the case.

Considerable assistance here should be offered by modern mathematical methods and means of automating troop control. Their task is to provide

prompt quantitative reinforcement of commander intuition, that is, to back up the commander's intellect, theoretically substantiating his decision. And all this must be done on a real-time scale. In other words, the modern troop control system must enable the commander to reach a decision practically under all conditions, with fulfillment of the demand that his staff has done everything in its power, that is, in each specific instance has prepared, in conformity with the commander's instructions, several quantitatively substantiated operation variants, from which the commander will select and confirm one as his decision. Lt Gen G. Semenov and Maj Gen V. Prokhorov propose to call this decision a <u>particular commander decision</u>,[7] in contrast to the comprehensive decision to organize combat operations (operation plan).

Complex theoretical and technical difficulties arise in turn in the development of an automated control system. Therefore at the first stage one can refrain from the endeavor to create an ideal system which is capable in all situations of "instantaneously" seeking and implementing strictly optimal control. In actuality it is sufficient if the system ensures not optimal control but control which is at least no worse than control effected solely by human operators.

A distinctive feature of the present stage of automation of troop control is the necessity of formalizing the commander's actions in the process of decision-making in order to secure a maximum capability of computer analysis of different action variants, with the aim of selecting an optimal solution. This means fundamentally new tasks for strategy, operational art and tactics: to state the "secrets" of the art of warfare in a language which permits a detailed computer study of the laws on which they are based.

Also complex is the problem of selecting criteria for evaluating the effectiveness of various subsystems (subunits) of the "large system" (for example, regiment, division, etc), formed for the attainment of a specific objective. One can reach the latter by different paths. Each of them comprises, as has been noted above, a certain sequence of actions and enables one to solve the stated problem with varying effectiveness: one will result in savings in means at the expense of time; another leads to the goal in the shortest period of time but requires considerable manpower and materiel; a third involves risk; a fourth involves non-recoverable losses, etc. The optimal solution is that one which under given conditions (with certain constraints) ensures attaining the stated objective with minimum expenditure of resources.

Various quantitative measures, called effectiveness indices, are utilized to compare different problem solution variants. Specific quantitative indices correspond to each problem solution variant. Selection of an

optimal variant is effected with the aid of a problem solution criterion (a criterion is an aggregate of measures and conditions for selection of an optimal alternative). For example, the result of a reconnaissance effort can be estimated on the basis of quantity of information acquired. Different variants of utilization of intelligence-gathering and reconnaissance capability secure the acquisition of differing quantities of information, which also constitute their effectiveness indices. The problem solution criterion is the quantity of specific information, that is that quantity of information acquired by one intelligence or reconnaissance unit. The optimal will be that variant for which this quantity is maximum.

There can be many effectiveness indices, just as problem solution criteria. In some problems the correct criterion is obvious, while in others its selection requires special investigation. We shall examine two examples.

Let us assume that for development of an attack it is necessary immediately to put fresh subunits across a river onto a captured bridgehead. The success of the operation depends primarily on organization of movement of the troops. This task can be accomplished by various means. The optimal will be that solution which ensures attainment of the objective at the earliest possible time. In this instance the criterion is obvious -- minimal time to move across the river.

Here is another example. It is essential to establish alternate and dummy artillery positions in order to ensure maximum concealment of the system of position siting in case of a hostile reconnaissance effort. It is considerably more difficult to find a criterion ensuring optimal solution to this problem than in the first example. In addition to the primary objective (to ensure maximum position concealment and minimum position vulnerability), additional tasks may be assigned (introduction of constraints), such as completion of construction within a specified time. In this case the optimal plan for siting alternate and dummy artillery positions may be implemented with nonoptimal expenses. If expenses are restricted, it is impossible to produce an optimal siting plan. In this case one can speak only of an expedient (optimal under the specified conditions) construction plan.

In general form criterion can be formulated as the degree of correspondence between the behavior of the system and the intention of control. Consequently control is inseparable from tasks of determining the objective of control, while to determine the objective it is essential to foresee situation development, that is to effect prediction.

Thus there arise the problems of goal specification (quantitative formulation of the operation objective) and construction of models which make it

possible to predict potential situations and actions. Solution of these problems, just as construction of a general theory of "large systems," is in the development stage.

Thus from the standpoint of cybernetics the subject of investigation by general theory of troop control is a suitably organized aggregate of men and equipment with the goal of ensuring successful accomplishment of the combat mission during the course of an engagement (operation). The study of operations, theory of decisions, theory of "large systems," theory of mass servicing and other applied mathematical disciplines serve as a basis for elaborating the methods of general theory of troop control. Concrete mathematical methods in combination with the dialectical method of Marxist-Leninist theory of knowledge constitute an instrument of the practical and theoretical activities of officers of all echelons and ranks, with the aid of which the most sophisticated theory of troop control will be formed.

At the present time creation of a science of troop control depends on the solving of a number of complex problems. Here are a few. First of all it is necessary to define troop control as a field of knowledge. This definition should orient theory toward solving the practical problems military commanders encounter. Secondly, it is necessary to establish the boundaries of this field in order not to examine within the framework of control theory all aspects connected with the functioning of the team or collective. Thirdly, it is necessary to formalize the basic principles of the art of warfare, including tactics, operational art and strategy, in order to utilize computers more extensively for the substantiation and selection of optimal solutions. Finally, it is necessary to solve the problem of symbiosis of the capabilities of commander and machine in order to secure normal functioning of an automated troop control system with the direct participation of a human collective. It is also important to refine the terminology, in order to improve mutual comprehension on the part of military commanders of all echelons and to eliminate errors caused by differing and inaccurate interpretation of basic concepts and terms.

In conclusion we shall briefly discuss several practical matters affecting the success of creation and adoption of modern troop control methods.

First of all we shall note that complexes of technical devices for automating control of "large systems" can as a rule be utilized for various objects. But the algorithms employed in simulating the processes of control of each individual object require unique elaboration. Experience shows that in order to automate control of complex objects it is necessary to have several thousand meaningful algorithms. It takes a team of from three to five persons 18 to 24 months to elaborate each such algorithm. In addition, military problems do not lend themselves easily to algorithmization, and therefore what is required is the ability to formalize

individual problems of military art. These problems can be solved most successfully by specialists who have experience in commanding troops and possess appropriate mathematical training.

Success in the development and adoption of automation of troop control depends on capability to effect within a specified time the requisite scope of algorithmization of basic staff operation processes. Therefore it is high time for dissertations, senior and course projects of military personnel to produce when possible meaningful standard algorithms worthy of inclusion in corresponding algorithm and program files.

Also of great importance is the ability of staff officers at all echelons quantitatively to formulate the objectives of combat missions (to effect goal determination). In the simplest case this means that if it is necessary to destroy a target, the degree of target destruction should be expressed quantitatively. Solution to the problem of goal determination can initially be promoted by mastery on the part of officer-operators of modern methods of quantitative solution substantiation, as presented in an article by Maj Gen Engr-Tech Serv A. Moskvin.[8]

In the interests of mastery of control theory it is essential to devote adequate attention in the curricula of service schools and academies to the cybernetic approach to troop control, as well as to publish larger quantities of appropriate literature. It is desirable for the principal military theory publications to contain a section on theory of troop control.

Solution of the above-enumerated problems is a task not of the remote future but of the next few years. It demands of officer personnel an intensive effort, and considerable supplementary, primarily independent work. There is no doubt that military theorists and practical experts will construct and master the most sophisticated modern "weapon" -- automated troop control.

FOOTNOTES

1. Voyennaya Mysl', No 10, 1965; No 2, 4, 6, 12, 1966; No 2, 8, 1967; No 5, 8, 9, 1968; No 10, 12, 1969; No 2, 6, 8, 9, 12, 1970; No 1, 2, 4, 6, 1971.

2. Voyennaya Mysl', No 6, 1970.

3. Voyennaya Mysl', No 8, 1970; No 1, 1971.

4. Voyennaya Mysl', No 9, 1970, page 36.

5. Voyennaya Mysl', No 3, 1970, page 68.

6. M. V. Frunze: Izbrannyye proizvedeniya (Selected Writings), Voyenizdat, 1965, page 281.

7. Voyennaya Mysl', No 9, 1970, page 37.

8. Voyennaya Mysl', No 8, 1969.

METHODS OF CHECKING THE READINESS OF WEAPONS SYSTEMS FOR COMBAT USE

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The increasing complexity of weapons systems, the demand that they be continuously ready for combat utilization and the increasing adoption of computer processing of data on the state of friendly forces and military hardware are posing a number of new questions pertaining to methods of verification and criteria for evaluating weapons readiness. The necessity of a high degree of reliability of verification requires that we seek new solutions in this area, based on the latest scientific and technological advances.

A fundamental task of verification of readiness of weapons systems for combat use, periodically organized and conducted by higher commanders and corresponding staffs, is determination of the state of weapons and the adoption of requisite measures aimed at ensuring a high degree of weapon combat readiness. Successful resolution of this task is promoted by efficient conduct of verification inspections and an objective evaluation of the state of weapons according to data obtained. Observance of these two conditions depends to a substantial degree on quality of planning, organization of the conduct of an inspection, and adopted verification methods and evaluation criteria.

Until recently the weapons system readiness check boiled down essentially to measurement of so-called check parameters, the obtained values of which served as a basis for determining the state of a weapon.[1] In some systems, particularly those with extensive utilization of automated devices and electronic gear, the number of such parameters runs into the tens and hundreds. Therefore with manual measurement the check process takes up considerable time and in case of errors results in incorrect decisions pertaining to the state of the system being checked. A large part of the inspection is performed with complex methods, requiring a considerable number of test instruments and the participation of highly-qualified specialists. All this limits the routine availability of verification performance.

In the past an equipment state assessment criterion has been the so-called parameter correspondence criterion (the pass criterion), according to which a system is considered to be operationally ready if the measured values of all check parameters are within specified limits. If even one such parameter falls outside allowable limits, this is sufficient reason to determine that the system is not operationally ready.

When this criterion is employed, it is very important correctly to select the requisite check parameters and to elaborate on a rigorously scientific basis a method of checking system readiness for combat use. Inadequate attention to this matter and superficial knowledge of the equipment (particularly at the beginning of utilization) lead to a situation whereby secondary parameters are designated as check parameters and the most important parameters are ignored. In some cases one and the same system characteristic is checked by verifying two and more parameters possessing a rigid functional relationship which, in addition to wasting time, overburdens the check process and introduces superfluous data.

In checking a large number of parameters, for the purpose of achieving savings in time and test equipment, the measurement of each parameter is performed one or two times; therefore the obtained value is a random quantity and depends to a substantial degree on the skill of the operator, method of measurement and quality of the measuring instrument. If one takes into consideration that parameter measurement errors (root-mean-square) are commensurate with the value of allowances, it will be obvious how great is the probability of obtaining an incorrect parameter value and in the final analysis arriving at an incorrect decision on system readiness.

In addition, methods used to check some systems have provided for them to be removed from a state of readiness during the check. The time of transition between check state and combat use readiness state was comparatively great and went beyond the limits specified by concrete situations.

Also important is the fact that verification of individual technical parameters fails to give a complete picture of the capabilities of the equipment as a whole and does not make it possible to establish the soundness of functional links between system elements and to evaluate the quality of system operation. Technical parameters per se characterize a device or its element from the standpoint of their sound working order and functioning, but they do not reflect tactical properties and therefore fail to give a picture of the state of the equipment. On the basis of check results one can only with a certain amount of assurance specify soundness (readiness) or unsoundness (non-operational state) of the system, which excludes a differentiated approach and reduces the objectivity of the check.

Due to the above-noted circumstance, a natural criterion with such a check method was the criterion of parameters correspondence, the essence of which has been stated above. We shall discuss the characteristic and evaluation of this criterion from the standpoint of its acceptability for the stated objectives. We shall define readiness of a system for combat use as a state of the system ensuring performance of a combat mission with a probability not less than specified.

The state of modern complex weapons systems, as a rule based on utilization of various electronic devices, is characterized by a large number of technical parameters, each of which to a certain degree determines the combat characteristics of the given weapon. The influence of these parameters on the combat characteristics of the system as a whole greatly differs and varies within substantial limits.

During the process of utilization, under the effect of a number of causes, including the time factor, the state of weapons does not remain constant. As a result of change in equipment parameters, equipment combat characteristics undergo changes, and this means change in the probability of accomplishment of the combat mission.

It is natural to assume that the magnitude of this probability will vary from 1 to 0, assuming several intermediate values. Corresponding to each probability value will be a specific level of equipment state, characterized by a specific aggregate of technical parameter values. In a case where a system is in a state ensuring accomplishment of the combat mission, it is combat ready, while when the state of the system does not ensure the value of this probability, the system is not utilization-ready. For subsequent discussion we shall designate a state corresponding to a ready system condition A_1, and we shall designate a state where the system is not ready as condition A_0. Under these conditions, taking into account errors in measuring check parameters, adopted decisions may be correct when the ready system is acknowledged ready (A_1*/A_1) or nonready (A_0*/A_0), and incorrect if an actually ready system is designated nonready (A_0*/A_1) or a nonready system ready (A_1*/A_0).

Adoption of a given solution is characterized by the corresponding probabilities whose values determine check reliability. The greater the probability that correct decisions will be made, the greater the reliability. Employing these definitions, it is not difficult to demonstrate that there may exist a discrepancy between the check parameter method and the criterion of their correspondence, reducing check objectivity. This discrepancy consists in the great information capability of the method and imperfection of the evaluation criterion for decision-making. A high assessment reliability with this criterion can be obtained only with a high accuracy of parameter measurement, which under certain conditions demands multiple (at least 5-10 times) measurement of each. This, however, will require considerable expenditure of time.

In employing the given criterion, the probability of adopting a correct solution $P(A_1*/A_1)$ is equal to the probability that the measured values of all check parameters were within allowable limits. The value of this probability will depend on the number and accuracy of measurements of parameters, which in turn is determined by the method of measurement, class

of test instrument accuracy and number of measurements. Under favorable conditions it is possible to obtain a correct parameter evaluation probability P_B equal to 0.9-0.95. The probability of arriving at a correct decision $P(A_1*/A_1)$ will be equal to the product of the probabilities of correct evaluations of check parameters:

$$P(A_1*/A_1)=\prod_{i=1}^{k} P_{Bi}$$

where k -- number of check parameters.

If $P_{B1}=P_{B2}=\ldots=P_{Bk}$ then $P(A_1*/A_1)=P_B^k$.

The value of this probability with the above-indicated probability values P_B will, with 10 check parameters, be 0.35-0.59, which is not allowable. With a substantially larger number of check parameters probability $P(A_1*/A_1)$ is practically equal to zero.

Correct decision probability $P(A_0*/A_0)$ increases simultaneously with an increase in the number of check parameters. Its value, determined by expression

$$P(A_0*/A_1)=1-\prod_{i=1}^{k} P_{Bi},$$

is equal to the probability of erroneous assessment of at least one check parameter, that is recognition of a parameter within allowable limits as a parameter whose value exceeds allowable limits.

Probabilities $P(A_0*/A_0)$, $P(A_1*/A_0)$ are less dependent on the number and accuracy of check parameter measurement; therefore we shall not examine them.

It follows from the above arguments and examples that the criterion of parameter correspondence with the substantially increased complexity of modern weapons systems does not enable one to obtain a decision reliability. Employment of this criterion may give a false picture of the state of combat equipment and the qualifications of the checking personnel. In fact, a low-qualification crew more frequently makes substantial errors in parameter measurement; as a consequence of this there is greater probability that an incorrect decision will be made, particularly of probabilities of type $P(A_0*/A_1)$. This circumstance sometimes suggests that the given crew has more rigorously approached the conduct of verification and has revealed a number of defects in equipment state, having specified it as noncombat ready.

In addition, the criterion of parameter correspondence does not enable one to characterize the real capabilities of weapons systems. With employment

of this criterion the weapon being tested can be divided only into two categories -- ready and nonready for use, while weapons systems (particularly complex systems), in a given state, may possess a number of levels ensuring several values of probability of accomplishment of combat missions.

Finally, with this criterion one cannot obtain a quantitative appraisal of weapon state, which does not provide the possibility of introducing check results into computers, on this basis evaluating friendly manpower and resources. Utilization of methods of manual computation of combat efficiency indices on the basis of check data is practically impossible due to the great unwieldiness and laboriousness of operations.

It follows from the above that the criterion of parameter correspondence under present-day conditions fails to correspond to the demands of objectivity of verification and the capabilities of weapons state evaluation. It is applicable only for comparatively simple systems possessing two fixed states -- operating and nonoperating.

In recent years methods of differentiated evaluation have been adopted to an increasing extent. We should mention in particular the point system of evaluation. The "penalty points" system also merits attention.

The point system of evaluation presupposes several gradations of appraisal of weapons state. Normally it is a four-point system, which contains grades of excellent, good, satisfactory, and unsatisfactory. A point reduction relative to "excellent" is effected on the basis of taking into consideration importance and number of parameters beyond allowance limits. Here particular parameter correspondence criteria are utilized as a criterion for making a given assessment. Of course utilization of this criterion constitutes certain progress in the direction of increasing check effectiveness, but it does not eliminate arbitrariness in the adopted evaluations and does not ensure the input of check data into the computer processing system, since the assigned points characterize the state of a weapon only from a qualitative standpoint.

The penalty point system, although based on a differentiated evaluation, does not reflect the true state of a weapon. It makes it possible to evaluate combat equipment in abstract units (points) assigned for defects revealed in the inspection process, but it in no way characterizes its capabilities. This system of evaluation in our opinion can be employed as criteria for decision-making in determining the results of tests conducted in the form of competition, that is when it is necessary to compare two or more analogous systems.

What promising areas for improving check inspection should be discussed, and what indices and criteria can be adopted for assessing the technical state of weapons?

In order for an inspection to be effective, it must be objective, prompt, simple, require as little time as possible and produce state evaluation results in a quantitative expression.

The objectivity of an inspection check depends in large measure on the relative number of operations performed manually, and the degree of information furnished by the method and selected decision-making criteria. An increase in inspection objectivity is inconceivable without its further automation and increased elimination of human intervention in the inspection process as well as elimination of subjective, and particularly preconceived errors, as well as improved reliability of decisions. At the same time a high degree of objectivity can be achieved under the condition of employment of criteria which most fully characterize the state of the weapon and respond to change in that state.

Promptness of check is an essential condition for maintenance of equipment in constant readiness for combat use. Prompt inspection will make it possible to avoid cases of substantial departure of weapon characteristics beyond allowable limits. But such an inspection requires precise planning and skilled prediction of combat readiness, which is the object of a special examination.

One important item is simplicity of inspection, consisting in determining the measure of participation in inspection not only of persons with special technical training but also medium-level technical qualification specialists. This will make it possible for engineers and technicians as well as command personnel to take direct part in inspections, which will have a positive effect on increasing the objectivity of inspections.

No less urgent, in many cases of prime importance, is a sharp reduction in time required to perform inspections. Under no circumstances should the inspection time be close to or commensurate with the time of average equipment operation to failure, since in such a case an inspection would lose its significance. The longer the inspection time, the less its reliability, since during the inspection process proper the state of equipment undergoes change and data obtained at the beginning of the process become obsolete.

Speaking of reducing inspection time, it is appropriate to bring up the matter of remote and continuous monitoring, which makes it possible at all times to obtain data on the state of principal weapon characteristics. Of course to meet this requirement equipment should contain built-in devices to monitor basic parameters as well as communication lines providing transmission of requisite information.

Analysis of possible check methods leads from an operational standpoint to the necessity of giving preference to automated monitoring and inspection methods, which are being increasingly adopted in complex weapons systems. These methods are also expedient from an economic standpoint. The most reasonable is utilization of those which make it possible to check equipment not in a static but rather dynamic state, characterizing the state of a weapons system under conditions approximating combat.

Implementation of these methods demands elaboration and adoption of automatic measuring devices,[2] providing for testing and measurements without direct human participation and reproducing the measured value in the form of a number, graph, etc. In order to reduce the volume of testing it is advisable to shift from checking primary to checking generalized parameters characterizing the state of individual devices, systems or a weapons complex as a whole. Determination of generalized parameters as test parameters improves reliability of decisions made on the basis of check data and makes it possible to have a status evaluation in a quantitative measure. In addition, adoption of automatic measuring devices will make it possible for the personnel operating the weapon system to receive data on the state of the equipment promptly during the process of operation and to take appropriate measures to maintain it in a continuous state of operational readiness. Finally, automatic measuring devices make it possible to correct problems quickly, greatly reducing the time required to correct the malfunction, which results in improved operational reliability.

Worthy of attention is utilization in check processes of mathematical statistics methods, which make it possible on the basis of a certain selection of parameters to determine the state of the system as a whole. These methods will provide prediction of state of readiness, which will provide the possibility of scientific substantiation of inspection intervals. An examination of statistical theory of recognition will be useful for this purpose.

Criteria for evaluating the state of weapons are determined primarily by the purpose of the inspection and themselves in turn impose demands on selection of inspection method and algorithm, as well as volume of information processed. Utilization of the most expedient criteria makes it possible not only objectively to evaluate but also to predict equipment state. Action result evaluation criteria are used.

Since the purpose of inspection is to determine the present state, characterized by effectiveness of missions performed by the given weapons system, it is expedient to adopt as a generalized evaluation criterion a combat effectiveness index -- probability of mission accomplishment $W(V)$, where V -- quantitatively expressed mission. In particular cases it may be determined by the specified value of mathematical expectation of number of targets destroyed, number of aimed rounds fired, target detection

probability, etc. Then the condition for adopting a given decision can be written in the following form:

$W_{act}(V) \geq W_0$ -- the system is considered operationally ready;

$W_{act}(V) < W_0$ -- the system is considered not operationally ready, where W_0 -- specified system effectiveness.

The advantages of this criterion consist in the fact that it makes it possible to establish a relationship between technical parameters and weapon combat characteristics, directly characterizes the combat effectiveness of the system being checked, and expresses it in a quantitative measure. Of course the acquisition of numerical values of quantity $W_{act}(V)$ will require graphic or analytical methods of computation, but in our opinion this will not cause any special difficulties, particularly in designating generalized parameters as check parameters. If computation of quantity $W_{act}(V)$ proves complex in practice, one can select as decision-making criterion level of equipment state I_0, ensuring accomplishment of the combat mission with a probability not less than W_0. This level can be characterized by the aggregate of values of several parameters determined in advance.

Improvement of check methods and weapons system evaluation criteria presupposes imposing specific demands on circuitry and design in designing and building new models of equipment. Therefore in formulating a tactical-technical task it is essential to provide for the possibility of checking weapons readiness taking into consideration complexity of combat equipment, state of measurement and testing equipment, and the availability of modern data processing and reasonable criteria. This approach will ensure objectivity of inspection, quantitative evaluation of weapons effectiveness and will be the most economical. At the same time flexibility and efficiency of inspection will improve, which in the final analysis will lead to the creation of conditions promoting the maintenance of weapons in a state of continuous readiness for combat use.

FOOTNOTES

1. G. M. Gnedov: K voprosu otsenki effektivnosti sistem po rezul'tatam kontrolya parametrov (Evaluating Systems Effectiveness from the Results of Parameter Checks), LVIKA im. A. F. Mozhayskogo, 1968.

2. V. P. Balashov et al: Avtomatizatsiya radioizmereniy (Automating Radio Measurements), Izd-vo Sovetskoye radio, 1966.

BASIC THEORETICAL QUESTIONS ON TROOP COOPERATION IN COMBAT*

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As is well known, success in modern combat is achieved by skillful employment of all arms and services. This in turn dictates the necessity of organizing close and comprehensive coordination of the arms and services.

Organization and maintenance of continuous coordination is one of the principal tasks and duties of the commander. Its implementation is one of the most complex measures; it is a creative process of particular significance.

Method and content of organization of coordination differ in each type of engagement (operation). The essence of coordination and the necessity for its implementation, however, remain practically unchanged.

Diversified weapons operate on today's battlefield, as well as units and large units (operational formations) dispersed along a wide frontage, to considerable depth and possessing various combat capabilities. Therefore the goal of coordinated action is a unification of efforts and maximum utilization of fire results, taking into account the specific features of each weapon and arm for attaining the final objectives of the operation (engagement).

The essence of coordinated action as a whole is best characterized by the content proper of the expression "coordinated action of troops" which, as is well known, encompasses a number of concepts, such as: coordinated action by units (subunits) of various arms and services; coordinated action of various fire means within the unit (subunit) or arm; coordinated action between individual elements of a force (combat formation); coordinated action with neighboring units, with the forces and weapons of the higher commander or with troops operating up forward.

Such a breakdown of terms in our opinion makes it possible better to understand an aggregate of matters connected with organization of coordinated action and more precisely to determine the scope of measures carried out thereby.

Coordinated action between various arms and services (infantry, armor, artillery, and aviation) is organized by the combined-arms commander. Proceeding on the basis of the assigned mission and availability of various weapons, he should focus special attention on organization of their effective combined operations.

*Militärwesen, No 7 and 9, 1970.

The principal demands made on commanders and staffs in the interest of effecting coordinated action are a conscious effort to establish coordinated action, precision by each in carrying out his duties, as well as rapid response to all combat situation changes.

A conscious effort to establish coordinated action finds expression in the direction of efforts by individual units (subunits) and support means (arms and services) toward accomplishment of the assigned mission. We are dealing here in particular with rapid utilization of the results of friendly nuclear strikes.

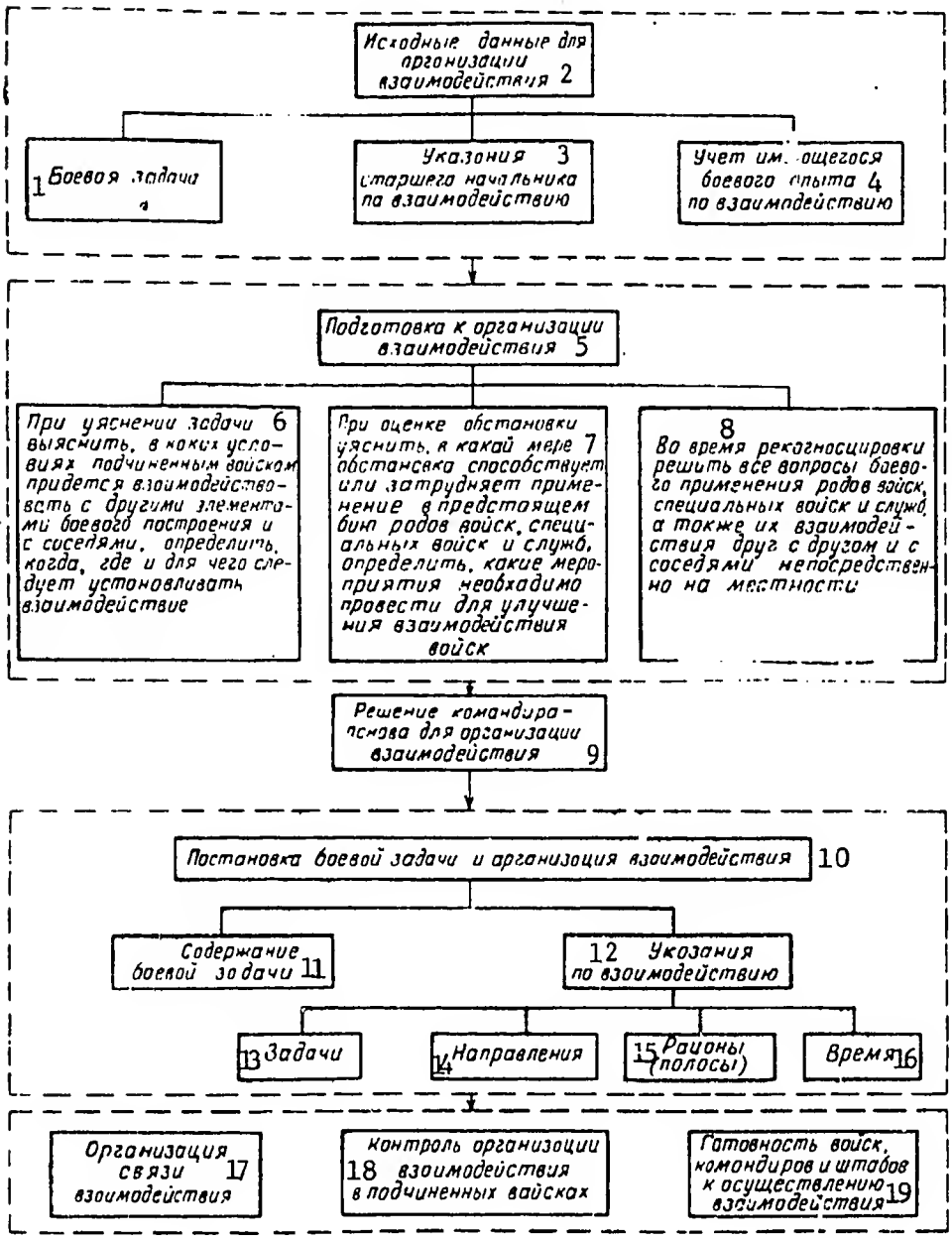
Organization proper of coordinated action is effected centrally, in coordination with received instructions. But this at the same time presupposes that commanders at all echelons during the course of combat operations at operational depth and with any and all situation changes will display initiative extensively, in order swiftly to exploit the success of friendly troops within the framework of the general plan of the higher commander.

Close coordination can be achieved only when combat (operational) missions for cooperating units are precisely specified as regards time, place, zones and objectives, and their execution should be verified if possible. The diagram shows the sequence of establishing coordinated action and the order of its organization in various types of engagement.

The methods, sequence and content of commander and staff efforts in maintaining continuous coordinated actions can be quite varied. One essential condition, however, is knowledge by all commanders and staffs of the current battlefield situation, verification of troop execution of combat missions, the ability to predict the development of events and promptly to make correct decisions, as well as availability of men and weapons requisite to carry out the assigned missions.

In organizing coordinated action, commanders and staffs should also take into consideration the effect of various adverse conditions of season and time of day or night on military operations. One must emphasize thereby that the final results of an operation (engagement) depend to a considerable degree on how well coordinated action has been organized and how promptly changes (refinements) are made in troop operations (in conformity with the battlefield situation).

We shall examine problems of coordination in greater detail with the example of the meeting engagement, which in our opinion is the most typical in contemporary warfare. Regardless of the conditions of initiation of the meeting engagement (on the march, during the attack or in defense), it will always be characterized by an endeavor by each commander to obtain reconnaissance data on the enemy, to proceed swiftly to the area of anticipated



Block diagram of organization of troop coordinated action in combat.

Key to figure: 1 -- combat mission; 2 -- initial data for organizing coordinated action; 3 -- coordination instructions of higher commander; 4 -- consideration of past combat experience in coordinated action; 5 -- preparation for organizing coordinated action; 6 -- in briefing on the mission: elucidate under what conditions subordinate troops will be cooperating

(Key to figure on previous page, cont'd) with other elements of the combat formation and with adjacent units; determine when, where and why coordinated action should be established; 7 -- during situation assessment: determine to what degree the situation promotes or hinders employment in the forthcoming engagement of arms, special troops and services; determine what measures must be taken to improve troop coordinated action; 8 -- during reconnaissance settle all matters of combat employment of arms, special troops and services, as well as their coordinated action with one another and with neighboring units directly on the spot; 9 -- the commander's decision -- basis for organizing coordinated action; 10 -- statement of the combat mission and organization of coordinated action; 11 -- content of the combat mission; 12 -- coordinated action instructions; 13 -- missions; 14 -- axes; 15 -- areas (zones); 16 -- time; 17 -- organization of coordinated action communications; 18 -- verification of organization of coordinated action in subordinate troops; 19 -- preparedness of troops, commanders and staffs to carry out coordinated action

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action for the purpose of seizing an advantageous line of deployment, to gain time in order to bring up requisite men and equipment, and to seize the initiative. Therefore the following are, as is well known, the most important factors which determine success of the meeting engagement: continuous conduct of reconnaissance, swift decision-making and communication of the decision to the troops, anticipating the enemy in opening fire and deploying main forces, as well as securing one's flanks.

A very important element in the activities of the combined-arms commander, who organizes combat operations in anticipation of a meeting engagement, is securement of comprehensive coordination within a force, as well as with possible adjacent units. Methods, time and sequence in carrying out measures connected with this depend on the concrete battlefield situation. Basic matters pertaining to coordinated action are thoroughly examined (elaborated) before combat is initiated and are subsequently concretized and refined en route, as data on the enemy comes in.

The purpose of coordinated action in the meeting engagement is primarily to hinder (or prevent) the enemy in his attempts to pin down friendly troops (particularly forward echelon troops) during deployment into combat formation and to deliver the enemy a defeat which will prevent him from continuing the conduct of active operations. The achievement of these goals, however, is complicated by the fact that the commander who organizes the meeting engagement will possess limited information on the enemy. Therefore everything which secures the fastest acquisition of data from ground and air reconnaissance assumes particular importance.

The method and content of organizing coordinated action are determined to a considerable degree by the nature of actions taken by the enemy who, utilizing air power and long-range artillery, will endeavor to halt the approaching troops and to prevent them from deploying and taking favorable ground.

The commander who organizes coordinated action should focus special attention on coordinating by place and time the actions of individual units (subunits) with supporting units (particularly artillery) as well as with the forces and weapons of the higher commander, which perform missions in his interest. In estimating the situation he should determine: the manpower and weapons to operate on the main axis of advance; routes of movement of the main forces and their time of arrival; lines of deployment into combat formations; time of initiation of fire (particularly artillery), as well as the moment of shift to the attack.

In refining missions for individual units (subunits) it is advisable at the same time to give coordination instructions which, depending on the situation, may encompass the missions: of all units (common for all), of the forward echelon, support echelon (reserve), artillery and mortars, antiaircraft defense weapons, combat engineer and antichemical protection subunits.

It is recommended that instructions pertaining to organization of coordinated action be given in the sequence in which combat missions are assigned. This is particularly important for artillery and mortars, as well as air defense weapons.

After missions have been refined and instructions received on organization of coordinated action, the troops proceed to carry them out. The commander together with the control group travels by APC ahead of the main forces. He is accompanied by the commanders of attached and supporting forces. Troop missions, specified on the map, are refined en route.

During the meeting engagement the commander must keep a close watch on the situation and respond to all changes, taking into account the prior-elaborated plan of coordinated action. One of his main duties at this time will be the execution of issued orders and swift introduction of requisite changes into troop actions.

A particularly difficult situation may develop as a result of enemy employment of nuclear weapons, since it will be necessary to restore troop combat readiness, replenishing losses from support echelons (reserve), as well as partially altering their combat missions. One of the principal tasks thereby will be reestablishment of disrupted coordination between separate elements within one's force and with supporting weapons. Personal contact

between the commander and his subordinates will unquestionably be the most effective in a situation of this type.

In conclusion we must stress that a prerequisite for successful organization and maintenance of coordinated action in the meeting engagement is knowledge by commanders and staff officers of the essence and nature of this type of combat operation.

Abridged translation by
Col I. Andrushkevich

THE MILITARY-ECONOMIC BASIS OF TASKS

(Responses to the Article "Economics of Armed Forces")

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The problem of maximum efficient utilization of resources has been and remains one of the most important problems. It is reflected in an article by Professor A. Lagovskiy,[1] which deals with a rather broad range of items. A number of these should be discussed.

As subject of our discussion we shall select several problems of military economic research. First we shall formulate the objective of such investigations. They should ensure optimal results in utilization of allocated (that is specified) resources or the achievement of specified results at minimum cost.

If we speak of resources in general (material, human, financial), their volume and application variant should be the most efficient from the standpoint of the state. Consequently, solution to the problem of expenditures for military purposes goes beyond the framework of purely military science.

Problems of the expediency and optimal expenditure of specified resources are evidently a subject of military economic investigations conducted within the framework of military science; this of course does not exclude varying this quantity within certain limits.

Professor Lagovskiy correctly notes that all military economic research should be conducted on the basis of a unified methodology. One should rely on the achievements of various areas of science for its elaboration.

As is well known, matters pertaining to efficient utilization of resources are studied in theory of operations research and in systems analysis. Their methods are applied to an equal degree for substantiation of economic and military tasks.

In both cases the search for an optimal variant of action is conducted by comparing results and outlays (while economic effect is estimated in the former case, military effect is estimated in the latter, taking into account economic interests). The expression "economic effectiveness" of equipment is hardly suitable in examining military-economic problems. It is obvious to all that combat equipment produces no economic effect. Evidently it is more correct to speak not of "economic effectiveness" but rather of outlays -- one of the fundamental indices employed in the process of military economic studies.

For example, in examining processes of weapons development, military requirements are normally expressed in the form of tasks which weapons development should perform. Military requirements always enter into conflict with volume of allocated resources: the greater the military tasks, the greater the amount of resources spent on them and the fewer resources remain for other purposes.

In order to resolve this conflict it is necessary for the tasks of defense and the volume of resources required for these tasks to be maximum efficient from the standpoint of the interests of the state as a whole. The problem of coordinating tasks with material resources allocated for producing and maintaining weapons is perhaps the fundamental problem in military economic studies.

What does the term "task" signify? Task (objective) is broadly defined as the anticipated result of actions aimed at satisfying a specific requirement with the aid of available means. Thus statement of the objective (task) presupposes a correspondence between the end result of actions and the resources allocated to achieve the objective.

It follows from the above definition that scientific planning is based on realistic tasks, that is tasks backed up by resources. But when proceeding to plan it is not always immediately possible to formulate tasks which correspond to available resources. Creative thought as a rule runs ahead of the material conditions securing the manufacture of machinery, equipment, instruments, etc.

Material resources are always limited. If military requirements are not fully met (and one must take this objective point into consideration), it is necessary to find a reasonable degree of satisfaction of these requirements. Consequently the tasks which will be stated in the area of weapons production, for example, are not specified solely on the basis of operational-strategic considerations but are rather determined in the process of military economic analysis. This principle is particularly characteristic of the present stage of development of military affairs.

There are different variants of resource utilization in determining volume of resources. Resources are distributed in such a manner that the combination of tasks to be accomplished is the most preferable of all possible variants.

To determine the preferability of combinations of tasks means to compare them. The degree of accomplishment of each task is characterized by its exponent. The number of these exponents is at least equal to the number of tasks. A substantial number of exponents or indices of course makes it difficult to compare variants. In order to simplify the procedure of

comparative estimation of allocated resources distribution variants, it makes sense arbitrarily to subdivide tasks into two categories: vitally important, and alternative.

With this approach it is assumed that the necessity of allocating resources for vitally important tasks is obvious. As regards alternative objectives, selection of the most preferable combination is effected as a result of a military economic study. It is quite understandable that the total number of indices is reduced, and the operation of comparative estimate of variants is alleviated.

In connection with the fact that resources for vitally important tasks are as a rule allocated, any given plan is elaborated on the principle: accomplish the stated task with a minimum of outlays. In cases where extraordinary circumstances or unforeseen questions arise, not outlays are minimized but rather the time which is needed to produce what is required.

Distribution of funds for accomplishment of alternative tasks presupposes the achievement of maximum effectiveness. One endeavors thereby to find a variant (for example, mix of weapons and everything required for their maintenance and utilization) ensuring accomplishment of the most preferable combination of tasks. Possible tasks are enumerated for this purpose. From the list of possible tasks obtained in this manner one forms various combinations, which are then ordered on the basis of the interests of the more general objectives.

We shall illustrate the method of obtaining an ordered sequence with the example of assessment of combinations of missions which can be assigned to forces located in three areas. For the sake of simplification we shall limit ourselves to two tasks, which call for securing an equality of forces with the potential adversary and securement of superiority over the adversary in a specified area.

Combining in various ways the missions accomplished in each area, we can obtain several combination variants (Table 1).

Table 1.

Index Number of Variant	Missions Accomplished in Areas		
	No 1	No 2	No 3
1	S	S	S
2	E	S	S
3	S	E	S
4	S	S	E
5	E	E	S
6	E	S	E
7	S	E	E
8	E	E	E

Note to Table 1 on preceding page: The letter S indicates superiority of forces, and the letter E -- equality of forces. Corresponding to each task are quantitative characteristics which are not cited, in order not to complicate the example.

Now we place these variants in order of preference. Of course the first combination will be the most desirable -- a superiority of forces is secured in all areas, and the eighth combination will be the least acceptable, whereby an equality of forces is secured in all areas.

The remaining variants are ordered on the basis of the interest of general objectives.

As a result we can obtain an ordered sequence of combinations of various tasks (see Table 2).

Table 2.

Number Characterizing Preference of Combination of Tasks, W_0	Tasks Accomplished in Areas		
	No 1	No 2	No 3
8	S	S	S
7	S	S	E
6	S	E	S
5	E	S	S
4	S	E	E
3	E	S	E
2	E	E	S
1	E	E	E

The number W_0=8 has been placed in congruence with the most preferable variant, and W_0=1 with the least preferable. The numbers W_0 perform the role of criterion in comparative appraisal of variants.

Resource requirements to perform all alternative tasks of course exceed capabilities. In this connection there arises the necessity of maximum efficient distribution of resources remaining unutilized after estimating outlays for vitally important tasks. For efficient distribution of resources (task substantiation) it is necessary to possess data of two types. First of all one requires information characterizing the relationship between the degree of accomplishment of each individual task and requisite outlays. Secondly, one requires an ordered sequence which reflects the correspondence between the combination of tasks and the interests of achieving the more general objectives.

The optimal variant of resource distribution and its corresponding combination of tasks are selected from a specified number of possible (with the existing volume of resources) combinations of tasks. A comparative assessment of combinations of tasks which can be accomplished with different variations of resource distribution is effected with the aid of the ordered sequence (Table 2).

For example, if available resources enable one to accomplish one of three combinations of tasks with index numbers 2, 3, and 4 in Table 1, one should select that resource distribution variant which ensures accomplishment of the combination of tasks with index number 4, as the most preferable (number W_0=7 corresponds to it in Table 2).

Thus it follows from the above that recommendations on the most expedient utilization of resources allocated for defense are elaborated on a quantitative basis. Consequently, the special discipline which Professor Lagovskiy proposes should first and foremost encompass military economic analysis methods essential for substantiating practical decisions made at various levels (A. Pozharov in particular mentions this in his response article[2]).

It would seem feasible to call this discipline "fundamentals of military economic analysis." Its subject and content must be defined on the basis of practical interests. We should like to express the wish that there be a more extensive discussion of this matter with the participation of specialists in systems analysis and planning agency personnel.

FOOTNOTES

1. See Voyennaya Mysl', No 1, 1970. Responses to this article are contained in Nos 3, 9, 1970, and Nos 4, 8, 1971.

2. Voyennaya Mysl', No 4, 1971, page 51.

PERSONAL RESPONSIBILITY

(Problems in the Training and Development of Young Officers

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People attempt to evaluate the attitude of an individual to his assigned work and to the fulfillment of service and social obligations with the word "responsibility."

A social life is the objective basis of responsibility. Man cannot exist by and for himself, without relations with other people and outside of contact with the collective and society. In the process of production, scientific, cultural, military, and other activities, a feeling of responsibility develops. This is one of the most widespread and vitally important qualities of the personality. It represents the result of social development and is conditioned by the requirements of social life. A change in the economic and political structure inevitably leads to a change in the social essence and ideological content of responsibility. Depending on the socio-economic formation and the specifics of the concrete activities of people, it acquires various philosophical, political, legal and moral foundations.

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In a socialist society (in comparison with any exploitative society) responsibility has an ideological, social, and moral basis, which differs in principle. In Soviet society, A. S. Makarenko said, another chain of dependency exists, a dependency between the members of society, existing in an organized life and striving for a definite goal.[1] In our society, which provides for and defends the interests of all of its members, responsibility has been expanded and extends to all of the spheres of production, political and spiritual life and the sphere of military organizational development.

Marxism-Leninism represents the <u>ideological basis</u> for responsibility in our society, arming the Soviet people with knowledge and a correct understanding of the laws of social development and the development of communism, and contributing to a profound understanding of the domestic and foreign policies of the party and government. With a mastery of Marxist-Leninist theory the Soviet people acquire a scientific world outlook and have a clearer concept of their goal and the long range outlook.

The socialist production method and the state political structure represent the <u>social basis</u> for responsibility. In the USSR, socialist property,

communist ideology, and fraternal cooperation between all nations and nationalities prevail.

The moral basis for responsibility is communist morality which has developed on a firm foundation of socialist production relations and absorbed the very best moral standards and principles worked out during the process of the development of socialism.

The legal basis for responsibility is the Constitution of the USSR and the laws of the socialist state. For military personnel it is also the military oath, regulations, manuals, and orders. These define general and official duties and the scope of tasks, the fulfillment of which is the responsibility of soldiers, sailors, sergeants, officers, generals and admirals.

The Soviet State, assigning specific obligations to each citizen, requires accountability from him for their fulfillment. At the same time it also establishes various measures of influence for their nonfulfillment, for all offenses, and for a negligent attitude toward the assigned work. "When a decision is made," it is stated in the Accountability Report of the CPSU Central Committee to the 24th Congress, "it must be perfectly clear who bears responsibility for it. And it must also be clear just who bears the responsibility if a necessary decision is not made or is dragged out. At all levels of administration it is important to clearly define the scope and correlation between rights and responsibilities."

A social and psychological atmosphere of responsibility on the part of people in society or in a collective is developed under the influence of objective conditions, a concrete way of life, and the actions and education of the personality. Definite views, convictions and habits are formed. A reflection by the individual of objectively existing relations in society and their manifestation in deeds, conduct and actions give shape to responsibility as a feature of personality.

We know that stable attitudes of an individual toward his surroundings, toward other people, toward his activities and toward himself are defined by psychology as the characteristic of one's character. Responsibility, embracing the basic attitudes of the personality, represents one of its most important qualities.

Responsibility is closely tied in with other features and qualities of the personality, which make up and nurture the potential spiritual strengths of Soviet people and personnel in the Army and Navy.

Personnel of the Soviet Armed Forces are educated in a spirit of the most profound responsibility not just for their assigned service sector, but also for the fate of the motherland and for strengthening the might of

the Soviet state. The leading force with respect to fulfillment of these tasks are the military personnel who are called upon to set an example of responsible performance of service duty.

The ideological tempering and professional orientation of an officer and the strength and constancy of his convictions form the basis for a responsible attitude toward the assigned work. A responsible attitude toward his deeds and conduct is expressed in a high level of discipline, accuracy and precision in the fulfillment of his assigned obligations. It improves smoothness of function in the service, activates volitional qualities, and mobilizes the officer to achieve positive results. It is precisely in this context that M. V. Frunze emphasized the necessity to educate people who possess a sufficient sense of responsibility.[2]

The psychological aspect of the problem is also important. As a motivational factor in the conduct, deeds and actions of an officer responsibility represents a kind of connecting link between the awareness of one's obligations and their practical realization. A well-developed feeling of responsibility helps to overcome the contradictions which arise in those cases when one knows what he must do and how to do it, how to conduct oneself, but nonetheless does not do it.

Clarification of the "place" of responsibility as a social phenomenon and as a personel characteristic is essential for the correct determination of ways and methods of developing it.

Purposeful nurturing of a feeling of responsibility presupposes a clear-cut concept of its psychological structure. In the structural respect it has intellectual, emotional and volitional elements. While relatively independent they are interconnected and mutually conditioned. The task of education is to take this connection into consideration and exercise the necessary influence on the awareness, feelings and will of an officer.

In any conscious act of the personality (fulfillment of obligations, actions) Karl Marx considered the recognition of three characteristics to be beyond doubt -- the intellect, the heart, and the will (K. Marx and F. Engels, Works, Volume 3, p 516). Responsibility, as a psychological formation, does not exclude the role of habit. V. I. Lenin noted that under conditions of the communist society people will gradually become accustomed to precise and mandatory observance of the rules of human society.

Experience is acquired during the process of repetition of actions, deeds and conduct. All of this, of course, is refracted within the sphere of awareness. And if in the beginning, let us say, an action represents the result of an understanding of necessity or even a result of the desire to

avoid punishment, then as a result of multiple repetitions it becomes a habit. At the same time the systematic nature and repeated situations intensify and reinforce our habits.

A profound awareness of the necessity to function in exact accordance with the requirements of the oath and regulations and to fulfill assigned obligations in an exemplary manner are a guarantee of responsible action in any situation in time of peace or war. It is precisely on this basis that experience in purposeful conduct is acquired during the performance of service duty, the habit of always observing regulation requirements and fulfilling one's duties with high quality is developed. The habit becomes reinforced as a responsible attitude toward one's work and as a desire to always act in good conscience and with an awareness of the importance of the duty being performed.

V. I. Lenin attached especially great significance to the personal responsibility of Soviet workers for their assignments. He spoke of the obligation of personnel to implement the decisions and directives of the party competently, firmly and systematically.[3] Vladimir Il'ich set forth the task of "learning to work," distributing the people more correctly, striving to establish the individual responsibility of each person for precisely defining work, and carefully studying and checking practical experience." (Complete Collected Works, Volume 45, p 169).

The CPSU steadfastly follows Lenin's ideas and creatively develops and enriches them.

The December (1969) Plenum of the Central Committee devoted a tremendous amount of attention to this problem, once again underscoring its special urgency under the conditions of modern development of the communist society for purposes of strengthening the Soviet state. The 24th CPSU Congress pointed out that the plans of the Ninth Five-Year Plan and the complex international situation require that responsibility be increased in every way possible on the part of all links of the state apparatus (and therefore of the Army and Navy) and all Soviet people for successful completion of their assigned tasks and the work entrusted to them.

The personal responsibility of officer personnel is increasing for a number of objective reasons. These include the increasing aggressiveness of imperialism, the specific features of the lives and activities of subordinates, the specific conditions under which combat training tasks are carried out, the existence of complex combat equipment and nuclear-missile weapons, and the necessity for maintaining constant combat readiness on the part of units, ships and combined units, and the Army and Navy as a whole.

The USSR Minister of Defense, Marshal of the Soviet Union A. A. Grechko, emphasized in a report at the Armed Forces Conference of Young Officers that we are presently faced with urgent problems connected with increasing responsibility for fulfillment of orders and combat training plans, primarily by organizing field training and exercises directly in the field, in the air and at sea, by further reducing the periods required to make the troops combat ready, by the exemplary performance of combat duty, and in other matters.[4]

Responsibility presupposes the mobilization of all spiritual and physical forces and the manifestation of good political and combat qualities, psychological stability, and well-founded decisions and selfless actions directed toward precise and absolute fulfillment of orders, directives and instructions of the command.

II

Responsibility as a personal quality of the Soviet officer is not something inborn, something which appears by itself. It is formed under the influence of all of life, all of the means of ideological and organizational work, and the entire system of education and training. It is developed and reinforced during the process of the cognitive and practical activities of officer personnel. What is more, the formation occurs gradually and is related primarily to the overall development and formation of the individual. But, of course, this also requires a certain level of psychological maturity and the presence of skills and vital experience. The possibilities of cognition and the labor activeness of the personality increase with the development of the intellectual, emotional and volitional spheres of the psyche.

Although intensive development of a feeling of responsibility does occur in youth it is still full of contradictions, does not have a firm foundation, and can develop in an incorrect way if scientific and purposeful guidance of this complex process is not exercised.

We are faced with precisely this alternative when we deal with 18-year-old youths who have selected a career as an officer. Clearly, the matter of developing responsibility and turning it into a stable feature of the personality represents one of the most difficult tasks involved in working with future officers. In reality an individual's character and specific features connected with his age make clarification of the role of personal responsibility to the people and to oneself unavoidable. This is helped along by the further formation and development of communist conviction and the conditions of life and work.

For example, the school situation introduces a young person to an absolutely new set of obligations and also requires definite responsibility.

Mastery of the rudiments of military service, the study of military regulations, the taking of the oath, and the strict observance of their requirements -- the entire atmosphere facilitates the formation of responsibility as a quality of personal character. Service interests impel teacher-commanders in the school or unit and on the ship, where the students undergo practical training, to analyze over and over again the total system of educational means and methods in order to reinforce firm ethical and moral concepts in the consciousness of the future officer.

Let us point out that this does not occur neither in the sphere of consciousness nor in the sphere of feeling without leaving a trace. A regimented military order and iron discipline accelerate the formation of firm habits of a responsible attitude toward obligations, habits which did not exist before and which in time will become an established standard of conduct when the lieutenant receives his assignment to the forces.

In spite of the fact that the given process does not occur without contradictions and not always as one would desire, the feeling of responsibility is sharpened and intensified during the time spent in the school. In the majority of cases it reaches that level where it is possible to speak of it as a developed quality which is based on a firm ideological-political foundation, a high level of patriotism, and a professional military goal orientation. At the same time one may notice a casual attitude toward duty on the part of lieutenants who have served their first year in the forces and frequently even a certain lack of understanding of these duties.

This is due in part to lack of experience because the probationary period does not provide sufficient "material" which would make it possible to sense and to feel responsibility within the framework of the future position. That is why the problem of developing a feeling of responsibility in the young officer, especially after graduation, is always pressing in itself, and why commanders, political organs, staffs, and party and Komsomol organizations are called upon to deal with it in the most serious manner.

This is a long, difficult and specific job requiring a differentiated approach to subordinates, a thorough knowledge of their individual characteristics, and purposeful pedagogical effort. It is entirely a question of the particular form and under whose guidance it will be realized. While among mature people the process of developing responsibility occurs basically as a form of self-education, the young officer absolutely must have the help of an individual wise in the ways of military service and life and also needs a well thought-out system for achieving the formation of this quality.

Arriving at the unit or on the ship the lieutenant experiences considerable difficulties: he finds himself in different conditions and a different atmosphere and he is faced with new goals and assigned new responsibilities. All of this requires active work on his part and increases his responsibility to the collective, first of all for his own actions, deeds and conduct, as well as for the actions, deeds and conduct of his subordinates.

Recognition of the new situation not only from the point of view of responsibility for oneself and one's conduct, but also for the entire collective, has a favorable effect on the education and formation of the young officer in the forces. In addition, the main task of this period, that of developing skills and forming habits, applies in a responsible manner to the fulfillment of any assignment and to service duties as a whole. A Marxist-Leninist tempering, a world outlook and awareness emerge as internal, guiding features of people and determine all of their other qualities in a decisive manner, including personal responsibility.

Conviction and, as a result, responsibility influence the psychic makeup of a personality and determine its volitional qualities. A deep conviction of the justness of our work and communist awareness and good moral fiber form the source for inspiration and action, and an indissoluble connection between word and work, deeds and actions. At the same time it is the basis for the development of responsibility as a personal quality in the young officers. In this connection V. I. Lenin's words on the necessity for directing an especially great deal of attention toward development of the awareness of responsibility are convincing and valid. (Complete Collected Works, Volume 38, p 119).

A great deal of attention is being directed toward this work in the Army and the Navy. In the districts and in the fleets lectures and reports are read and the works of Marxist-Leninist classics are studied, as are the decisions of the CPSU and theoretical works dealing with matters of war and the army, military doctrine, the nature of modern warfare, the specific features of the new phase in the development of the armed forces, and tasks connected with training and education. An important place belongs to scientific military work, theoretical conferences, discussions of theoretical military literature on such subjects as "V. I. Lenin on Personal Responsibility for the Work Entrusted," "The Requirements of the CPSU for Responsibility of Military Personnel," "The Increase in the Responsibility of Officers and the Modern Stage of Development of the Soviet Armed Forces," "The Psychological Characteristics of Responsibility" and others.

It is difficult to cover everyone with organized measures and the same subject will not be new for everyone. Here self-education is an irreplaceable form, which is available to everyone. Unfortunately, one

encounters among the young officers those for whom self-education has still not become an internal need and a habit of life. They usually justify this by saying that all their time is taken up with routine matters and put off their studies of theoretical military literature until "tomorrow." They are satisfied with what they have learned in the school and, of course, begin to fall behind. But he who counts on his old skills and does not develop himself inevitably loses ground in the long run. His qualities as a leader and an educator deteriorate and his feeling of responsibility becomes dull.

As practice has shown it is not enough to hope that a rich potential of ideas, confined to mass political undertakings and ideological work (without any effort on the part of commanders and political organs), will become the possession of the officers and will help to develop effectively the feeling of responsibility among them. Success depends on the realization of a number of conditions.

The first condition is the systematic disclosure of the social significance of responsibility in the work of officer personnel, its essence, and Lenin's instructions and party decisions on personal responsibility for the work assigned in class within the system of Marxist-Leninist philosophy, and scientific communism. In the sense of their educational effect on the personnel, the given subjects possess great potential which has not been exhausted by far, at least within a plan of scientific interpretation of the content of responsibility, selection of factual material from the activities of V. I. Lenin and his comrades in arms, and examples from the Great Patriotic War and the current stage of organizational development of the Armed Forces.

Second is the correct application of various forms of propaganda-agitational and mass cultural work (lectures, reports, discussions, theoretical discussions and seminars, meetings and conferences, scientific reports, scientific military conferences, and so forth).

The third condition is improvement of individual work with each officer and a firm knowledge of his strong and weak points.

The fourth condition is independent work, during the course of which awareness is stimulated, links between the intellectual and emotional elements of responsibility are strengthened, and the volitional sphere of the psyche is affected. During the process of independent work young officers require well-qualified assistance with subjects, individual and group consultations, and systematic control.

The fifth condition is the constant realization of the link between ideological effect and combat and political training tasks and the support of the combat readiness and practical work of the officers.

The necessary result is achieved when the young officers are equipped with concrete knowledge, assisting them in the formation of skills and habits in their specialties, along with theoretical knowledge. For this purpose lecture facilities are set up for the young officers, as well as schools of advanced experience in training and education, and so forth.

The development of personal responsibility among young officers is achieved not by observing any particular one of the above listed conditions, but by fulfilling all of them as a whole.

III

Combat training and daily work make it possible to see more clearly the degree to which the feeling of responsibility is developed in this or that officer and to take their weak points and strong points into consideration in order to improve this quality. Daily service is the source of well-rounded experience and exercise of the will, a stimulus to the development of awareness, and a source of influence on the formation of elements of responsibility. Military work strengthens and develops habits and features of character. Effective development of a feeling of responsibility is achieved only with the skillful application of various means and methods.

The commander's example, his attitude toward the fulfillment of military duty, is one of the methods. As M. I. Kalinin pointed out, the commander influences those who are learning not just by imparting certain knowledge to them, but also by his conduct, way of life, and his attitude toward everyday phenomena.[5]

By contrasting the service of a superior commander and his deeds and actions to his own, the young officer develops certain convictions in himself and creates his own concept of attitude toward work. Imitation of the positive model becomes a conscious test of his strength, will and purposefulness, and a critical check of himself and his work in his performance of assigned duties. Under the influence of the positive example of the commander the attitude of young officers toward performance of their duties changes substantially. They not only work to the fullest extent of their strength and capabilities, but also demonstrate initiative and independence in the achievement of constant combat readiness and in fulfillment of the training plan.

The educational functions of personal examples are great. No effect can compare with the influence of personal examples. V. I. Lenin said that "a living example is more effective than any sort of proclamations and conferences..." (Complete Collected Works, Volume 35, 278).

The systematic and pedagogically correct conduct of objective critiques of service activities serves as a means for developing responsibility among young officers. During these, the state of training and education of subordinates and self-improvement work are analyzed from all sides.

Success in this depends on the conclusiveness and objectivity of the reasoning used in evaluating the conduct and actions of officers. It is useful to include concrete examples as well as generalized principles and to indicate the situation in which the individuals operated. The educational importance of these critiques is increased considerably if they single out and analyze individual characteristics of participants in classroom studies, exercises, cruises and flights, and also the successes and omissions of the officers. When this is done not only the positive examples, but also the shortcomings along with a thorough analysis of their reasons and sources will have an educational effect.

Success in the development of responsibility among young officers depends to a large degree on demonstrating trust in them, providing them with the opportunity to demonstrate initiative and independence, and the elimination of such practices as petty tutelage and substitutions, which create the grounds for the emergence of inertness, weak will, and lack of responsibility.

The educator accumulates the appropriate skills gradually and by various methods, including pedagogical observation of the actions, conduct, results and style of work of the young officers, and their psychological condition. The chiefs implement a unified line of requirements, reacting rapidly to the application of means and methods of educational effect in connection with the changing conditions of life and service.

In determining the means and methods of forming personal responsibility among young officers an important place is assigned to self-education, which creates the necessary prerequisites for self-development directed toward intensification of the feeling of responsibility and elimination of gaps in the formation of the stated quality.

This process is not a spontaneous one, but a completely controlled one, because the self-education of a mature man and of a youth are far from being one and the same. Consequently, the effectiveness of self-development of responsibility and, in the final analysis, the effectiveness of the entire system of the development of this personal quality depends to a great degree on the organization and direction of aid provided for the young officers. A twofold dependency can be traced. The inculcation of responsibility creates the necessary conditions for self-development of the stated quality, and self-development, in turn, ensures success and effectiveness in the inculcation of responsibility.

It is of primary importance to stimulate an interest in self-development of responsibility and to help the young officers define this task as a goal. At the same time one should learn how to strictly evaluate conduct, deeds and actions in order to sense one's shortcomings and overcome them.

For this purpose the self-education of young officers should be directed toward self-improvement of personal qualities using such methods and means as self-conviction, self-inspiration, self-criticism, the following of a good example and a high spiritual ideal, practice, self-encouragement and even self-constraint.

Daily regulation demandingness, smoothly functioning order, and a precise rhythm of service have a primary role in the formation of the young officer and the development of responsibility in him. It is precisely these circumstances which create the objective conditions for the formation of a high level of responsibility.

Based on the preceding considerations we shall attempt to formulate the concept of responsibility. The responsibility of a Soviet officer is a complex moral and political quality, expressing a profound awareness of the necessity for precise fulfillment of the assignment, serious concern, and anxiety for the results of his personal work and the activities of his subordinates, constant striving to fulfill his obligations conscientiously and in accordance with the laws, regulations and orders in the interest of improving the combat readiness of the Armed Forces and the defense of his Motherland and the countries of socialism.

In all types of activities of young officers the means and methods of developing responsibility in them are inseparably connected with each other and depend on each other. Effectiveness and success depend on their pedagogically skillful and correct combination and application. The more varied the educational effect on the awareness, feelings and will of the young officer, the more effective this formation will be.

FOOTNOTES

1. A. S. Makarenko, Works, Volume 5, Publishing House of the Academy of Pedagogical Sciences of the RSFSR, 1958, pp 205, 206.

2. M. V. Frunze, Works, Volume 3, State Publishing House, 1927, p 316.

3. This topic was considered in greater detail in preceding publications. In particular, see the article by A. Altunin (Voyennaya Mysl', 1971, No 7).

4. Vysokoye prizvaniye. Vsearmeyskoye soveshchaniye molodykh ofitserov (A High Calling. The Armed Forces Conference of Young Officers), November, 1969, Military Publishing House, 1970, p 12.

5. M. I. Kalinin, O kommunisticheskom vospitanii i voinskom dolge (On Communist Indoctrination and Military Duty), Military Publishing House, 1967, p 423.

REAR SUPPORT OF THE SOVIET ARMED FORCES

DURING THE GREAT PATRIOTIC WAR

Army General S. Maryakhin

The victory of the Soviet Union in the Great Patriotic War, which was of worldwide historical significance, was made possible by the entire preceding course of its development. In building the new society, developing the economy and carrying out the cultural revolution our people under the guidance of the Communist Party created the prerequisites for the active defense of its revolutionary achievements.

Systematically and steadily implementing the instructions of V I. Lenin to the effect that it is necessary to prepare for the defense of the socialist homeland in a serious manner and over a lengthy period of time, beginning with an economic upsurge in the nation (Complete Collected Works, Volume 35, p 395) the party transformed our nation into an advanced industrial-kolkhoz power within the historically short period of time of the pre-war five-year plans.

The rapid development of the national economy made it possible to carry out rearmament of the Soviet Army and Navy on a broad front. At the same time large-scale measures were being conducted to prepare the rear of the Soviet Armed Forces. By the beginning of the war our Army and Navy possessed perfectly adequate supplies of arms, ammunition, fuel, rations and other types of material resources. For their support all links of the rear possessed the essential quantity of depots and bases. It also included transportation, repair, medical, veterinary and other units and installations.

During the pre-war years our theoretical military thinking also achieved marked success in the area of rear support [or: logistical support]. In resolving problems on rear support consideration was also given to the experience of operational rear support and division and regiment service areas during the conduct of Soviet army operations against the Japanese militarists on the Khalkhin-Gol River in 1939, and also during the Finno-Soviet War of 1939-1940. On the basis of this experience a new draft statute on rear support of the Workers' and Peasants' Red Army was worked out and issued in 1941, and a number of measures were outlined for improving the organizational structure of rear support and the principles of its operation. The organizational principles of rear troop support which were established met the requirements of Soviet military art. By the beginning of the Great Patriotic War the rear support of the Soviet Armed Forces on the whole was prepared to fulfill tasks connected with supporting the forces in their operations.

Inherent in the work of rear support during various periods of the war were characteristic features brought about by concrete developments of the situation.

The first period of the Great Patriotic War was extremely difficult for rear support of the Soviet Army and Navy. The treacherous attack on our nation by the German fascist invaders prevented its complete deployment before the beginning of the war. This task was carried out simultaneously with support of the combat operations of the forces. The greatest difficulties arose after the enemy temporarily occupied certain regions designated for the deployment of rear support units and installations. It was necessary to designate new regions for this, which extended the periods necessary for logistical deployment.

Simultaneously with the all-round support of the forces engaged in heavy defensive combat and the mobilization of its elements, the Armed Forces' rear support services were performing a tremendous volume of work involved in supplying the newly activated units and the reserve combined units and operational formations which were moving up from the rear, as well as supporting the preparations and conduct of counterthrusts, and so forth. During the period of 22 June through 1 December of 1941 alone, 194 divisions and 94 brigades were formed and dispatched into the active army.[1]

In order that the Armed Forces' rear support be able to better cope with its missions during the course of military actions it was necessary to conduct a number of supplementary measures to improve its organizational structure, technical equipment, and the principles of its operations, as well as measures to reinforce the leadership core of operational rear support with experienced personnel.

On 28 July 1941 the State Defense Committee adopted a special decision on reorganization of the rear services. The post of Chief of the Red Army Rear Services was introduced and the Main Directorate of the Rear Services was formed, consisting of: Headquarters of Chief of the Rear Services, the Directorate of Military Communications, the Highway Maintenance and Construction Directorate, and Inspection. The Chief of the Red Army Rear Services was simultaneously put in command of the Main Quartermaster Directorate, the Fuel Supply Directorate, the Medical Directorate, and the Veterinary Directorate.

The Chief of the Red Army Rear Services was assigned the functions of organizing rear support, regulating the transportation of all types of supplies and replenishments to the operational fronts and the evacuation of the sick, the wounded, and military equipment to the rear zones of the nation.

Rear services directorates were formed in the fronts and armies, headed by the Chief of the Front (Army) Rear Services, who was at the same time deputy commander of the forces. The rear services directorate consisted of an organizational-planning section (later to become rear services headquarters), a military communications section, and a highway service and inspection section. In addition, the Chief of the Rear Services was put in command of the quartermaster directorate (section, in the army), the fuel supply section, and the medical and veterinary sections.

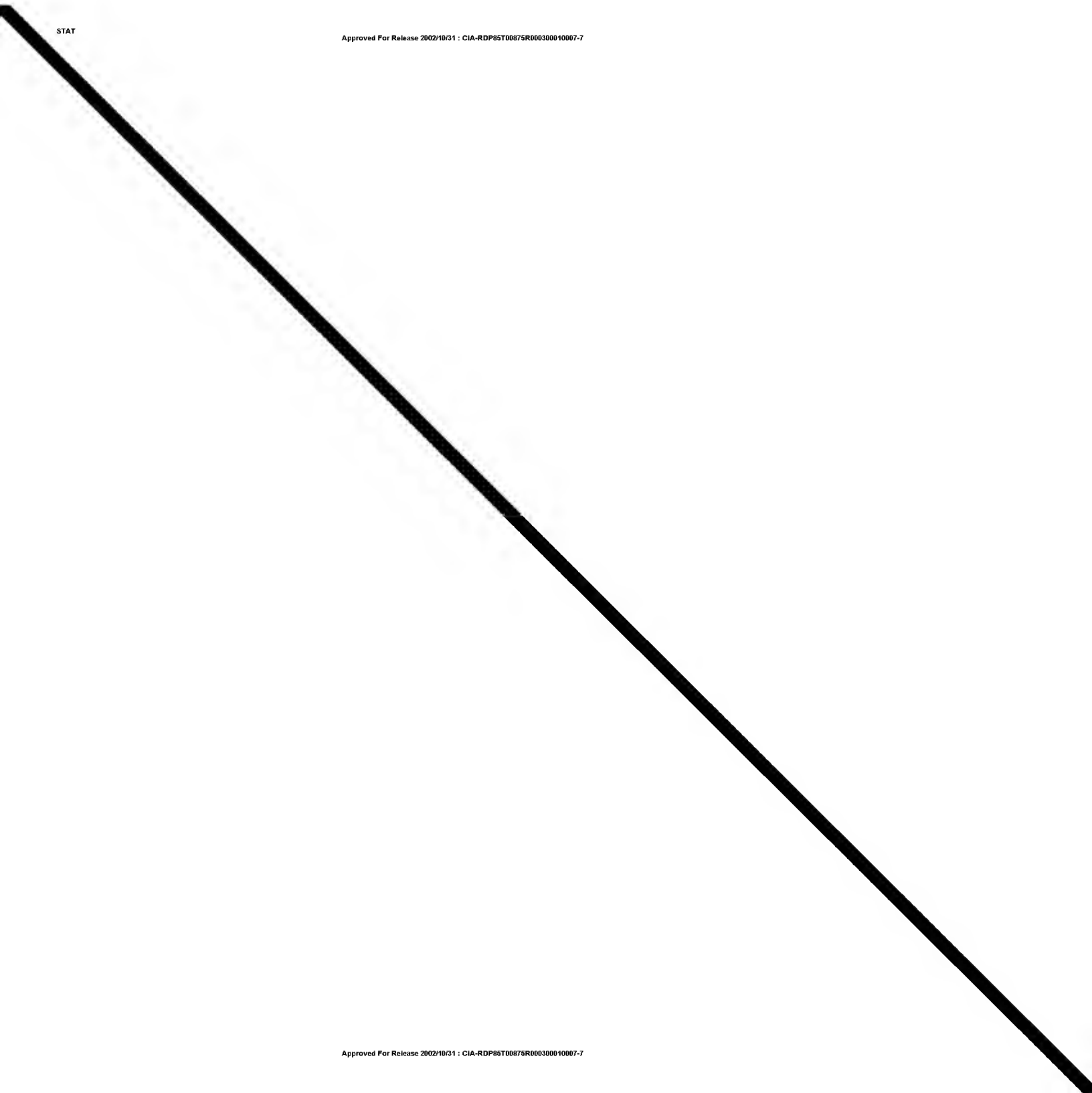
The artillery supply service was headed by the Main Directorate of Artillery. The supply of armored vehicles, engineer equipment, means of anti-chemical protection and communications, and other equipment remained under the management of the corresponding commanders (chiefs) of branches and services. However, in matters of transportation and evacuation, disposition, and the protection and defense of all rear services units and installations, they were required to follow the instructions of the Chief of the Rear Services.

Important military chiefs and political workers were moved up to leading posts in the central apparatus of the Armed Forces' rear services. General A. V. Khrulev was named Chief of the Red Army Rear Services and certain commanders of military districts and other military workers became deputy commanders for the rear services. These were generals V. N. Kurdyumov, V. K. Mordvinov, M. A. Reyter, I. K. Smirnov, I. G. Sovetnikov, and M. S. Khozin.

During the course of the Great Patriotic War administrative agencies of the naval rear services were also improved. In May of 1942 the position of Chief of the Naval Rear Services was introduced, to which General S. I. Vorob'yev was assigned. The Main Directorate of Ports was reorganized into the Main Directorate of the Naval Rear Services. Created later were the Directorate of Representatives of the People's Commissariat of the Navy, the Directorate of the Chief of the Baltic Fleet Rear Services for Transporting Cargo for the Network of Transport-Transshipment and Fuel Depots, and the Directorate of Rear Service Depots in Baku.

The party dispatched a large group of experienced workers from various branches of the nation's national economy to administrative agencies of the Armed Forces' rear services.

Intensification of political supervision of the rear was of great importance. In accordance with a decision of the Party Central Committee, one of the members of the Military Council of the Front and the Army was made responsible for the operations of the rear. He saw to the implementation of directives of the military council, coordinated the work of the front (army) rear with local party and soviet organs, and helped his



workers carry out the tasks facing them. Political sections of rear services units and installations were created in the fronts and armies, which helped to mobilize communists, Komsomol members, and nonparty workers of the rear area to solve the great tasks set for them, to further improve the role and activeness of political organs and party organizations as the guiding organs of the party in the Armed Forces' rear.

The Battle of Moscow was especially important during the first period of the Great Patriotic War. Its rear support measures were executed in an extremely tense situation. It was a harsh, snowy winter and heavy defensive battles were under way. The output of military products in October and November of 1941 was the lowest it had been during the entire year.

This created extremely great difficulties in supplying the active fronts and newly formed elements with arms, combat equipment, ammunition, clothing and equipment. The troops were poorly supplied at the beginning of the defensive battle. The front and army depots of the Western Front contained only 0.2-0.3 units of fire of the basic types of ammunition.

Transportation conditions were exceptionally difficult. Motor vehicle transport was inadequate and the railroads were operating under great pressure. Just at stations surrounding the capital 315,000 carloads were unloaded during the period of the Battle of Moscow. The significance of this fact becomes clear when one considers that there was no way to detour around Moscow and that two of five railroad lines approaching from the east were engaged in hauling cargo for the national economy.

Under these circumstances the careful use of material resources and the accumulation of supplies (reserves), especially at the disposal of the center, assumed major significance. Firm limits on the use of ammunition (and later, fuel) were introduced in October of 1941 in order to solve these problems. There began the creation of bases of the People's Commissariat of Defense for all types of materiel, which were directly subordinate to the central administrative agencies of the Armed Forces' rear services. Increasing the distance covered by railway cars up to 600-800 kilometers a day by carrying out regulatory measures on the railroads played a great role.

The measures taken made it possible during the course of the defensive battle not only to supply current expenditures of materiel, but also to create significant reserves at army and front depots and bases of the center. By the beginning of the counteroffensive troops of the Western Front, for example, had ammunition for 2 to 3 units of fire, fuel sufficient for 5 to 6 refuelings, and daily rations of food and forage to last 7 to 10 days.

With the turn of the Soviet forces to the counteroffensive, the nature and volume of tasks of the rear services and the conditions of their execution changed considerably.

Offensive actions first of all led to a sharp increase in the use of material resources, especially ammunition and fuel. The matter of supplying the forces with these was made extremely difficult because of the limited quantity of supplies, and especially as a result of extremely difficult conditions on the transportation routes.

Restoration of the railroads presented a great problem during the course of the counteroffensive. Because of weak support of the fronts by railway troops, inadequate equipment and materials, and the lack of experience, the rates of restoration of the railroads did not exceed 3.5-3.6 kilometers a day at a time when the forces were advancing to a depth of 6-7 to 12-15 kilometers daily.[2]

Taking into consideration the difficult situation with transportation, the General Headquarters of the Supreme High Command allocated the transportation means to the fronts from its own reserves. Frequently materiel, especially ammunition, was hauled by transport vehicles of the center directly from the plants to the divisions and regiments, bypassing the depots of the center, the fronts, and the armies. In a number of cases cargo which was in critically short supply was delivered to the attacking forces by air. This was so, for example, in the case of supplying the anti-aircraft units of the Fifth Army and the guards' mortar units attached to it, for which ammunition was airlifted from Moscow to the Tula region.[3]

In spite of the measures taken difficulties with transportation were not completely overcome and the troops experienced shortages of materiel during the course of the entire counteroffensive. This was one of the reasons for noncompletion of the offensive operations by Soviet forces during the winter of 1941-42.

The experience of the rear services in the Battle of Moscow was very important. It confirmed the fact that the structure of administrative agencies, adopted in July of 1941, basically corresponded to the nature of the military operations and the organizational structure of the Armed Forces and the conditions of their rear support. All of the rear service links were reinforced and their operational methods were improved. Firm foundations were laid for highway support and the comprehensive use of all types of transportation. Generals and officers of the rear services acquired experience in the organization of rear support under conditions of preparations for and the conduct of a large-scale counteroffensive.

During the course of the offensive operations the necessity arose to create a special captured enemy materiel service and to introduce

appropriate administrative agencies, units, and subunits into the structure of the rear services. It also became necessary to centralize the supervision of restoration work on the railroads. As a result of this all of the railway troops of the field forces were put under the control of the People's Commissariat of Railroads. For purposes of further strengthening administrative agencies of the field army rear services, rear support headquarters replaced the organization-planning section in the rear services administrative structure of the fronts and armies in May of 1942, and position of deputy commander for the rear services was established in the divisions and corps.

Thanks to the heroic efforts of the party and the Soviet people, by the end of 1941 the restructuring of our nation's economy had been completed in accordance with the requirements of wartime. Beginning in March of 1942 the output of military products began to increase rapidly. From December of 1941 to December of 1942 the production of airplanes increased by 3.3 times, the production of aircraft engines increased by 5.4 times, that of tanks by 3.7 times, and the production of diesel engines for tanks by 4.6 times.[4] This made it possible not only to considerably improve supplies to the rifle troops, but also to set about forming tank and mechanized corps and tank and air armies.

As we know the first period, which lasted around 17 months, has a special place in the Great Patriotic War as a whole. During this period Hitler's plans for a blitzkrieg type of war were thwarted, tremendous losses were dealt the German fascist army, its temporary advantages, resulting from the unexpectedness of its attack, were eliminated, and favorable conditions were created for a basic change in the course of the war. For the Armed Forces' rear services this was a period for checking the basic theoretical positions developed on the eve of the war, for acquiring combat experience and practical assimilation of its experience, and for improving the organizational structure and methods of operations.

The second period of the Great Patriotic War was characterized by a rapid growth in the level of technical supply of the Soviet Armed Forces, by a change to decisive aggressive operations by them, and by the intensiveness and great speeds at which operations were conducted. In 1943 our army received almost twice as many tanks as in 1942, more than 70 percent more airplanes, more than 120 percent more weapons, and more than 130 percent more mortars.[5] The conversion of the rifle forces to the corp system was basically completed during the summer of 1943, and the army and corp artillery units were created. New tank armies were formed, large combined artillery units of the reserves of the Supreme High Command were created, and the organization of the nation's aviation and anti-aircraft defense forces was changed.

All of this could not help but influence the nature and volume of tasks and the operational conditions of the rear services. First of all, the material needs of the forces increased considerably. The overall use of fuel in 1943 increased to 3.26 million tons over the 2.66 million tons used in 1942, and the expenditures of ammunition increased from 1.5 million tons to 3 million tons.[6]

During the course of the offensive operations the role of motor vehicle transportation and highway support increased sharply. As a result of the great damage and the slow rates of restoration of the railroads, front line depots and field army bases could not keep up with the troops. This created great difficulties in organizing the hauling of supplies. It led to drawn out communication lines and extended military roads, and consequently, led to a considerable expenditure of efforts and means for their preparation and maintenance. For example, prior to the forcing of the Dnepr by the Third Ukrainian Front front line military roads extended for 1,456 kilometers. During the battle for the Dnepr, the First Ukrainian Front constructed 263 new bridges with a combined length of 2,880 meters during August and September alone, they restored and strengthened 757 bridges with a combined length of 5,170 meters, and graded 650 kilometers of new roads.

The timely concentration of forces and means on the appropriate strategic axes and their extensive maneuvering during preparations for the conduct of operations acquired great importance when our forces were conducting subsequent offensive operations for the entire Soviet-German front. The role of the rear's central link increased during the execution of this task. Administrative agencies of the rear's center had to render aid to the fronts in good time and rapidly redirect the efforts of the rear services from one direction to another. It was necessary to increase the number of bases and depots and railroad, motor vehicle, medical and other rear service units and installations of central subordination.

The increased volume of tasks involved in the rear support of the troops and the increased difficulty of the conditions for their execution created the need to implement a number of new measures, directed toward further improvement of the organizational structure of the rear services and their methods of operation. In order to improve the organization of motor vehicle transportation and the restoration and maintenance of military roads, two independent services (automotive and highway), subordinate to the Chief of the Rear Services were created in 1943 on the basis of the Motor Vehicle Directorate of the Main Directorate of Armored Cars of the Soviet Army and the Highway Service.

The method of hauling materiel was also changed. The experience acquired in the offensive operations during the winter campaign of 1942-43 showed that the existing system of hauling "for oneself" ceased to meet the new

needs, given the high speeds of attack and the considerable distance separating the forces from the restored sections of the railroad. Transport vehicles of the combined units and units could not cope with their assignments. In order to eliminate this shortcoming a new principle was introduced in June of 1943 in accordance with which responsibility for the timely supply of all materiel was assigned to the Chief of the Rear Services of the next higher echelon, independent of the subordination of the transport vehicles used for these purposes.

The organization of medical support also underwent considerable changes. As a result of successful offensive operations by the Soviet Armed Forces it was no longer necessary to evacuate all of the wounded and sick to the rear area. The necessary conditions for the treatment of the sick and wounded were created at the fronts. Wounded personnel could return to their units upon recovery, which helped to make better use of personnel and increased the combat solidarity of units and subunits.

During the dynamics of operations there was a developing trend to deploy rear service units and installations as near as possible to the troops. This was made necessary by the conditions involved in delivering the supplies and evacuation. During the Battle of Kursk, for example, a distance of 100 to 250 kilometers separated the majority of front depots from the troops, and they were separated from the field army bases by a distance of 30 to 80 kilometers. These distances involved in transportation of supplies and evacuation were reduced as a result of moving the front and army rear service units and installations closer to the troops, and the conditions of rear support of the attacking combined units improved. For this purpose, in February and March of 1943 the Headquarters of the Supreme High Command for the first time in the war moved the central depots to a line west of Moscow and the upper Volga.

In this way during the second period of the Great Patriotic War operations of the Armed Forces were characterized by extremely intensive work in support of the large offensive operations, further improvement of the organizational structure of the rear services, and searches for more effective methods of using their efforts and resources under the new conditions of combat operations.

During the third period of the Great Patriotic War the structure of rear service organizations and the methods of organizing rear service support of the forces did not undergo significant changes. At the same time a number of significant specific features were noted in the work of the rear services brought about by the military-economic situation and the nature of the armed battle.

By the beginning of this period a fundamental turning point had been reached in the Second World War in favor of the anti-Hitler coalition.

The international prestige of the Soviet Union as the leading force in the battle against fascism had grown immeasurably. The Soviet military economy was developing rapidly and the supply of arms and combat equipment to the forces was increasing continuously. It is enough to say that the production of tanks and self-propelled artillery mounts increased from 24,000 in 1943 to 29,000 in 1944 and the production of airplanes, from 34,900 to 40,300.[7] In its composition and level of equipment saturation the Soviet Armed Forces were considerably superior to the fascist German army. The strategic initiative had been conclusively assumed by the Soviet Supreme High Command, and the strategic offense had become the basic method of military operations by the Soviet Army and Navy. This was realized by the successive (1944) and simultaneous (1945) conduct of offensive operations by a group of fronts over the entire Soviet-German front.

Distinctive features of operations of the third period of the war were the large scope, decisive goals and rapid rates of advance which resulted in a further increase in the requirements of forces and means of rear support. For example, during the advance by the three Ukrainian fronts in the second phase of strategic operations to free the Right Bank of the Ukraine the combat troops advanced about 300 kilometers at a rate of 15 kilometers a day. In the Belorussian and subsequent strategic operations the rates of advance reached 20 to 25 kilometers a day, and sometimes even more. In 1944, 55,000 more carloads of ammunition were used than in 1943. Expenditures of fuel for the front line offensive operations increased from 4,000 to 6,000 tons in 1942 to 20,000 tons in 1944 and 40,000 tons in 1945.

It was necessary to carry out a tremendous volume of work within limited time periods in support of the planned operations, especially with respect to accumulation of reserves of materiel. Thus, during the period of preparations for the Visla-Oder operation the First Belorussian Front alone received 68,461 carloads of cargo, of 1,300 carloads a day. Fulfillment of this assignment was complicated by the fact that combat equipment, ammunition and other materiel had to be transported over considerable distances from the Urals and the banks of the Volga where the main military production centers were located.

Even greater difficulties arose during the course of the operations with respect to the transportation of materiel. During their retreat the enemy entirely demolished the railroad beds, removed the rolling stock and blew up bridges, viaducts and other transportation installations in the area of operation. This slowed down the work of restoring the railroads and created a considerable gap between the forces and the supply bases.

Operational measures to prevent the enemy from destroying transport networks were very important in this situation. A good example of this was

the Belorussian operation. The commander of the Third Belorussian Front, General I. D. Chernyakhovskiy, and the commander of the First Baltic Front, General I. Kh. Bagramyan, assigned to aviation and partisans the task of destroying the means of damaging the railroad ties, preventing the enemy from blowing up railroad installations, and driving off their units. As a result the bridge over the Dnepr in the Krichev-Orsha sector was kept intact and large-scale destruction of the track was prevented. This made it possible to increase the rate of restoration of the railroads to 17 kilometers a day (compared to 8.5 kilometers specified by the plan) and to create favorable conditions for moving the rear service units and installations up to the forces in good time during the course of operations.

The complex utilization of all types of transportation assumed great importance within the dynamics of the strategic offensive. In order to provide the troops with materiel in good time, isolated sections of the railroads and animal-drawn transport were extensively used together with motor vehicles. Air transport was also used to deliver ammunition and fuel to the rank armies. There was also a clear tendency to increase the role of motor transport. While during the Kiev operation 274,000 tons of cargo was hauled by motor vehicles of the First Ukrainian Front, the figure reached 827,033 tons in the Visla-Oder operation, and 915,312 tons during the Berlin operation. Motor transport began to be used extensively for operational transportation.

During the concluding campaign of the third period of the war offensive operations were conducted simultaneously on various strategic axes while combat actions acquired an even more dynamic nature. As a result of this the necessity arose to constantly maintain mobile reserves of forces and resources for rear support and to maneuver them in good time during the course of operations. We know, for example, that during the Visla-Oder operation, when the troops of the First Belorussian Front moved up to the Oder River and the threat of a counterthrust by the enemy from the Pomeranian side arose, the commander of the front rapidly regrouped four combined-arms and two tank armies in the direction of the threat. The rear services of the front, however, did not possess the same mobility as the troops. Its forces and resources were dispersed up to 500 kilometers in depth. Thanks only to the fact that the General Headquarters and the front chief of the rear services had a certain number of motor transportation, medical, road, and other rear service units and installations reserved, and to their timely maneuvering, was it possible to support the combat actions of the troops in the new operational direction. More than 7,000 tons of ammunition was delivered there by motor vehicles during a 5-day period. Part of the railroad transport was also rerouted to the new direction with materiel. The medical service set up hospitals with 15,000 beds within short periods of time.

The organization of rear support during the third period of the war was characterized by a reduction in the depth of rear support areas during the period of preparation for operations. At the beginning of the majority of these operations the depth of rear support areas of the fronts did not exceed 150 to 250 kilometers, and 50 to 100 kilometers in the case of armies. Changes also took place in the organization of rear support of tank armies and other mobile combined units. Whereas formerly the rear services for these operational formations were deployed behind the combined-arms armies and only rear services units and subunits of the tactical units and combined units accompanied the troops in a breakthrough, in many operations of the third period a part of the army rear services and attached front elements also accompanied them in a breakthrough. This experience became a part of the basis of operations by the rear services of tank and mechanized forces during the postwar period and to a great extent has not lost its importance even today.

It must be stated that the operations of the allied troops in Western Europe, which began during the summer of 1944, did not ease the situation of the Soviet Armed Forces' rear support. As we know the main forces of Hitler's Wehrmacht were located on the Soviet-German front and it was necessary to conduct a difficult battle against them. And this required that there be no reduction in military production nor in the high level of operational efficiency of the rear service agencies in supplying the troops with combat equipment, arms, ammunition and fuel. In a number of cases, in addition, the Soviet Supreme High Command was forced to reduce the periods of time involved in preparing for the largest strategic operations and as a result of the rear services were forced to operate under great pressure. Thus, for example, in January of 1945 preparations for the Visla-Oder offensive operation were accelerated in order, at Churchill's request, to offer assistance to the allied forces which had found themselves in a difficult position in repelling the German attack in the Ardennes region. In April of that same year it became necessary to reduce the periods involved in preparing for the Berlin operation as a result of the intention by the allied command of forestalling the Soviet Army in its capture of Berlin.

With the shift of combat actions to the territory of foreign governments it became necessary to use private and state industry, railroads, and the work force of these nations to meet the needs of the Soviet Armed Forces; it became necessary to organize the procurement of agricultural products and to solve other problems anew. This required the creation of new administrative agencies and rear service units and installations, and the establishment of transshipment bases at the junctions of USSR and Western European railroad lines.

During this period, the rear service agencies of the Soviet Army rendered aid to the liberated peoples in restoration of their economies,

construction of housing, and the repair of railroads and highways. The populations received free medical aid and food. By a decision of the Soviet Government more than 900,000 tons of food were transferred from the supplies of the Soviet Army for this purpose. The fronts helped local residents to carry out the spring planting in 1945. More than 250,000 hectares of land was planted just on the territory of Germany with the aid of our troops and rear.

During the concluding phase of the war the fascist German command stepped up its actions against the rear of our field forces. In order to disorganize their operations the enemy used not only its aviation, but also diversion and reconnaissance groups and various bands of bourgeois nationalists. This increased the requirements for defense and protection of the area area. In order to fulfill this task reserve anti-aircraft defense regiments, units and combined units began to be employed more extensively along with special troops of the NKVD, and sometimes even other combat subunits. For example, in the Visla-Oder operation four NKVD regiments, 1,350 anti-aircraft guns, around 900 anti-aircraft machine guns and more than 200 searchlights were used for the protection and defense of the rear area of the First Belorussian Front.

* * *

In summarizing what has been said it should be pointed out that during the war years the Soviet Armed Forces' rear services carried out a colossal amount of work connected with the material, technical, medical, airfield maintenance, emergency rescue and other types of support and servicing of the forces and made a worthy contribution to the overall victory over the enemy.

The rear services received from the national economy and delivered to the troops more than 10 million tons of ammunition, more than 16 million tons of fuel, around 40 million tons of food and forage, and numerous other types of materiel. The military railroads hauled more than 19 million carloads of cargo and motor vehicles transported around 145 million tons. Around 120,000 kilometers of railroad tracks were restored and regauged and more than 15,000 railroad bridges were put into use; 350,000 kilometers of roads were services and around 100,000 kilometers of roads and 13 million linear meters of bridges were constructed or restored; more than 6,000 airfields were equipped and support was provided for 3.8 million sorties; and a tremendous amount of various kinds of equipment and military property was repaired. Thanks to the efforts of the rear services the soldiers constantly received full-value nourishment in all situations. During the war more than 72 percent of the wounded and 90.6 percent of the sick recovered and returned to the ranks. Infectious diseases accounted for an extremely small portion of the sickness of the

personnel. During the four war years all personnel of the Army and Navy were issued new summer and winter uniforms four times.

During the war years the fleets and flotillas used around 6 million tons of fuel, 40,000 tons of bombs, 5,000 tons of torpedoes, 12 billion shells and mines, 74,000 depth bombs and 1.5 million tons of food. The railroads hauled 677,000 carloads of cargo in support of combat operations of the fleets and flotillas. More than 12 million tons of supplies and around 5 million men were hauled by sea and river transport craft.

The remarkable feats of the personnel of the Armed Forces' rear services during wartime were highly valued by the party and government. The title of Hero of the Soviet Union was awarded to 52 rear service soldiers and more than 30 received the title of Hero of Socialist Labor. Many tens of thousands of generals, officers, sergeants and soldiers of various rear services units and installations were also awarded orders, given the title of Guard, or received an honorary designation.

What sort of conclusions can be reached from the experience of the organization and work of the rear during the course of the past war?

First of all the Great Patriotic War confirmed with great convincingness the importance of observing Lenin's instruction to the effect that a strong, well-organized rear is necessary for the proper conduct of a war. This requirement by V. I. Lenin applies with equal force to the rear in the broad sense of the word, as well as the Armed Forces' rear services. It is precisely the strength of the Soviet rear which was to become one of the decisive factors ensuring our victory during the Great Patriotic War.

The war demonstrated the great need to have a centralized system of rear area administration in the Armed Forces. This ensured the timely concentration of rear services' efforts for successful solution of the ever increasing volume of extremely complex tasks which arose during the course of the war as a whole and during various periods of military operations.

Combat practice confirmed the fact that success in the operations of the Armed Forces' rear services in time of war depends to a great degree on the extent to which the theory of rear support corresponds to the practice of conducting battles, operations, and the war as a whole. The principles of rear support of our Armed Forces during the course of the war constantly developed in accordance with the changes in the technical supply of the Soviet Army and Navy and the nature of operations and methods used to conduct them. This played a positive role in fulfillment of the tasks which were assigned to the rear services.

During the course of the war extremely valuable experience was acquired in coordination of the work of agencies of the Armed Forces' rear services with that of party and national economic agencies in the area of planning for the material, technical and medical support of the Armed Forces and also for the restoration of communications and the procurement of materiel from local resources. It is sufficient to point out that around 20 million tons of food and forage were procured and supplied to the troops during the war years.

Of great importance is the experience in organizing close coordination between the Soviet Army rear services and the rear services of foreign units and formations fighting on the Soviet-German front.

This was expressed, in particular, in the solution of such problems as support of national units and combined units (Polish, Czechoslovakian, Romanian, Yugoslavian, and others) during their formation on the territory of the USSR and the conduct of combat actions against the common enemy. Food and clothing supplies alone worth 1.6 billion rubles were used in support of these formations. Practice has taught us that the basic problems involved in such cooperation must be worked out and approved during peacetime.

The Great Patriotic War showed that under certain conditions the forces and resources of the Armed Forces' rear services may also be engaged for fulfilling such tasks as the rendering of comprehensive assistance to the national economy of their own nation and to the liberated people of other states.

The past war also enriched Soviet military science with extremely valuable conclusions applicable to other problems involved in the organization of rear support of the troops when they are conducting various kinds of combat actions. Many principles worked out during those severe years have not lost their validity even today.

It is perfectly obvious that the fundamental changes in the nature and methods of waging modern warfare, brought about by the appearance of nuclear missile weapons and other means of conducting armed battle, have required new organizational forms and operational methods for the rear services. However, a correct solution to problems of rear support of the troops in operations today is possible only if the extremely rich experience in the training and operations of the rear services during the past war is creatively applied along with a thorough consideration of the changes which have occurred in the military field and the extensive application of the achievements of science and technology.

During the postwar years the level of technical equipment of the Armed Forces' rear services has improved considerably on the basis of continuous

economic growth in our nation. Important changes have occurred in the nature of the work of personnel of rear service units and installations. Rear support of the Soviet Army and the Navy has become stronger than ever before and is capable of fulfilling tasks involved in troop support under any conditions of modern warfare.

The Ninth Five-Year Plan for the development of the national economy is opening up new horizons with respect to strengthening the economic and defensive might of our state. Soviet soldiers, including the personnel of the Armed Forces' rear services, inspired by the decisions of the 24th CPSU Congress, will demonstrate even greater persistence in mastering the equipment and weapons entrusted to them; they will steadily improve the combat readiness of the Soviet Army and Navy and stand vigilant watch over the state interests of their Motherland.

FOOTNOTES

1. 50 let Vooruzhennykh Sil SSSR (50 Years of the USSR Armed Forces), Voyenizdat, 1968, p 273.

2. Tyl i snabzheniye Sovetskikh Vooruzhennykh Sil (Rear Services and Supply of the Soviet Armed Forces, 1966, No 11, p 10.

3. Proval gitlerovskogo nastupleniya na Moskvu (The Failure of Hitler's Attack on Moscow), Nauka Publishing House, 1966, p 216.

4. Velikaya Otechestvennaya voyna Sovetskogo Soyuza 1941-1945. Kratkaya istoriya (The Great Patriotic War of the Soviet Union 1941-1945. A Brief History), Voyenizdat, 1970, p 184.

5. Ibid., p 237.

6. Istoriya tyla. Uchebnoye posobiye (The History of the Rear. Teaching Aid), Publishing House of the Military Academy of Rear Services and Transportation, 1967, p 108.

7. Velikaya Otechestvennaya voyna Sovetskogo Soyuza 1941-1945. Kratkaya Istoriya, p 441.

IDEOLOGICAL TRAINING OF THE PERSONNEL OF IMPERIALIST ARMIES FOR WAR

Lt Gen A. Shevchenko

The present stage of historical development is characterized by an exceptionally rapid aggravation in the ideological struggle between socialism and capitalism.

American imperialism is the main reactionary force, performing the function of world gendarme. The Central Committee Report to the 24th CPSU Congress notes that U.S. imperialism "in recent years has reaffirmed its aspiration to play the role of a unique guarantor and protector of the international system of exploitation and oppression. It is endeavoring to achieve world domination, is interfering in the affairs of other peoples, is brazenly violating their lawful rights and sovereignty... It is attempting to impose its will on nations and entire regions."

In addition to various methods of armed combat, aggression, and oppression by force of arms, world reaction is making use of all possible economic, political, psychological and other means, as well as the most extensive arsenal of forms of ideological effect, aimed both at brainwashing the civilian population and armies of capitalist nations and dependent peoples, and at subversive activities abroad, of course first and foremost against the USSR and all nations of the socialist commonwealth.

Intensification of the Ideological Training of Imperialist Armies

The worldwide ideological struggle is today characterized by significant qualitative changes, new methods and techniques, and by penetration of various areas of activity and relations between nations.

In this struggle the imperialist bourgeoisie is endeavoring on the one hand to camouflage and conceal from the masses, and if this attempt is unsuccessful at least to justify in their eyes its genuine aims and intentions, and on the other hand to blacken, slander and distort at all costs those great aims which the peoples, Communist and worker parties of the Soviet Union and brother socialist nations as well as the world Communist and labor movement set for themselves for the sake of a brighter future for mankind.

The imperialist strategists of anti-Communism, unable to establish an integral ideological program capable of providing an answer to the vital problems of the present day, are resorting to methods of ideological sabotage both on the domestic front and particularly abroad.

Within the overall system of political and ideological influence on the masses, the ruling circles of the imperialist powers assign a special position to the armed forces -- one of the principal instruments of the bourgeois state for solving both domestic and external problems.

The imperialist states, the United States and FRG in particular, presently maintain huge armies. This compels the ruling circles to place weapons in the hands of a substantial number of individuals from the toiler masses, the exploited classes. But from an objective standpoint the toiling people have never been interested in waging an aggressive war, in escalating the arms race and in strengthening militarism.

Unable to ignore this contradiction, Western political and military leaders are endeavoring to seek a solution through a steady intensification of the ideological and political brainwashing of the personnel in their armed forces, conducted in close coordination with careful selection of youth for military service, political surveillance and a stepped-up effort against dissenters, as well as by means of bribery and corruption.

An increasing number of Western political and military leaders have been compelled to acknowledge the role and significance of the moral-political factor, the morale of the masses and the army as one of the most important elements in a nation's strength. For this reason they are applying a considerable effort to maintain morale at a requisite level, particularly under conditions of the conduct of aggressive imperialist wars, organization of acts of provocation against other peoples, and overt preparations for a "major" war against the nations of the socialist commonwealth. It is obvious that there is good reason for the fact that in recent years there has been a considerable intensification within the armed forces of the imperialist nations of the ideological brainwashing of officers and enlisted personnel. In contrast to the recent past it has now become a most important component of the entire system of troop training and is very closely coordinated with the combat training of subunits and units, psychological training of personnel, organization of service, daily routine and leisure-time activities of military personnel of all levels, that is coordination with all activities in the army and navy.

Particularly serious attention is focused on the content of political propaganda, on formulating principal trends in ideological brainwashing, theses and arguments which best conceal the antagonistic conflicts within the capitalist world, the polar opposition between the interests of the masses and the handful of exploiters, the military-industrial complex, which would divert military personnel away from the critical problems of the present day, from the class struggle and the incurable defects in the bourgeois society.

Basic Content of Ideological Brainwashing

A key problem of imperialist propaganda in the military today is indoctrination of military personnel in a spirit of malicious anti-Communism and anti-Sovietism. An alternative to this is propaganda of dedication to the bourgeois system, to the ruling circles of imperialist nations, all-out cultivation of nationalism and chauvinism, and feelings of racial "superiority" over other peoples, particularly Slavic, Asian, African, and Latin American.

A most important element of ideological brainwashing is propaganda of the bourgeois way of life, consolidation of the principles of private ownership, profit, bourgeois "democracy" and the demand that they be defended at all costs. An important place is also occupied by praise of imperialist alliances and blocs, propaganda of predatory wars and reactionary military traditions, and on this basis propagation of a cult of violence and plunder; shameless falsification of the true aims, the character, purpose and tasks of the armed forces of imperialism.

In discussing the content of ideological brainwashing of the personnel of bourgeois armies as a whole, one must at the same time note specific features which are characteristic of each in particular. For the United States it is substantiation of the foreign policy of the present leaders, propaganda of the new military strategy, the "Nixon Doctrine," the campaign against the growth of antiwar attitudes and their influence on the army; for the Bundeswehr they include propaganda of revenge-seeking attitudes; for the British they include defense of the ideas of British colonialism and a strengthening of the thesis of the supraclass nature of the monarchy, etc.

These problems are closely interlinked in a practical manner during the course of ideological brainwashing. They find expression, as will be demonstrated below, in the most varied forms and methods of political propaganda, in combat and psychological training of military personnel, in their training and indoctrination both on duty, in the unit, on board ship, in the barracks, during off-duty hours.

The Central Committee CPSU Theses on the Lenin Birth Centennial state that the imperialist bourgeoisie maintains control over the peoples of imperialist countries not only by force but by deception as well. It is to an increasing degree resorting to ideological means of enslaving the masses, is turning to "total" ideological mobilization of all reactionary forces under the banner of anti-Communism and anti-Sovietism.

Anti-Communism and anti-Sovietism, its most important component, permeate literally the entire system of imperialist military training. Beginning with the formulation of military doctrine and various military theoretical

concepts, organization of troop combat training and all forms of personnel training, to "informative" lectures for enlisted personnel, sermons by military chaplains, motion pictures shown in enlisted men's and NCO clubs as well as books in regimental libraries, command and armed forces propaganda agencies never retreat for a single moment from anti-Communism as the basis of all their activities in the area of ideological training of personnel.

Each year numerous congresses, symposia, conferences and other anti-Communist events are conducted in the United States, the FRG and elsewhere. There have been, for example, such widely-publicized anti-Communist events as a "trial of Communism by international public opinion" organized in Washington by fascist ultra-rightists, or the conference of top propaganda officials of the NATO nations on "how to offer better opposition to Communist successes," held in Copenhagen in March 1970.

The Pentagon stands among the front ranks of the organizers of such events. In recent years symposia and conferences on anti-Communism have been held on numerous occasions at a number of top-echelon headquarters, at all war colleges, service schools, at many military garrisons, as well as in large units. The American forces in Europe, for example, offer special courses on a year-round basis, the purpose of which, according to the newspaper Stars and Stripes, is "to teach unit and subunit commanders the best methods of presenting to their men the ideals of Americanism, the dimensions and character of the Communism threat."[1] A "permanently-operating school of anti-Communism" has been established in the U.S. 25th Infantry Division. There are many examples of this kind.

A number of large-scale measures of this type have been recently carried out by NATO military bodies. At the end of December 1970, for example (for the first time in the history of this aggressive bloc), a NATO conference of high-ranking military-political and diplomatic officials was held in Norfolk, Virginia. The topic of discussion was "The Problem of the Growing Threat of the Soviet Armed Forces, Increasing Soviet Activity on the Seas and Oceans, and the Threat to NATO in Connection with This." The speeches delivered by the conferees were extensively utilized by the Western press for anti-Soviet propaganda and further arousing of war hysteria.[2]

One important area in the ideological indoctrination of personnel in capitalist armies is attempts by bourgeois propagandists to falsify the history and fighting traditions of the Soviet Armed Forces, to play down their decisive contribution toward victory over fascism and the significance of their liberation mission during World War II. Exaggerating the importance of the operations conducted by the forces of the Western powers which were members of the anti-Hitler coalition, the falsifiers

endeavor to create in their students and readers a false impression about our strength and might, to distort the essence and character of our Armed Forces, to show their own armies in the best possible light.

The ideologues of imperialism are making extremely vigorous efforts to downplay the achievements of building Communism in the Soviet Union, of the building of Socialism in the brother nations, to blacken and slander our social and political system, the policies and activities of the Communist and worker parties.

Bourgeois falsifiers are focusing attention on the difficulties which still exist in the socialist nations. Measures undertaken by Communist and worker parties, by the governments and peoples of the brother socialist nations to improve the operations of government, economic and planning agencies, to improve socialist democracy, are deliberately and viciously distorted by imperialist propaganda and are announced as an economic and political "crisis," economic "failures," etc. On the contrary, all actions by revisionist and rightist elements which weaken the unity and solidarity of the socialist society, the leadership role of the Communist and worker parties, opening up paths for the penetration of bourgeois ideology, are proclaimed by them to be a manifestation of alleged "liberalization" and "democratization" of socialism.

In recent years an increasing role in anti-Soviet, anti-Communist propaganda in the armed forces of the imperialist nations has been played by vicious Zionism. In spite of the fact that anti-Semitism is just as rampant as racism, national chauvinism and revanchism in the United States, the FRG and other NATO nations, and particularly in their armed forces, bourgeois propaganda, including military propaganda, is now making every effort to distort the Leninist nationalities policy of the Soviet Union, its position in regard to the Near East situation, and is giving total support to the wild claims of the Israeli extremists.

The military press, military radio and TV broadcasts by the United States and other countries are currently carrying numerous materials on the alleged "difficult situation" of the Jews in the Soviet Union, all kinds of ridiculous claims and deliberate falsehoods.

What do the bourgeois propagandists place in contrast to Marxism-Leninism, the practical building of socialism and Communism? What do they offer their military personnel as a "positive example"? Here a dominant position in bourgeois propaganda is occupied by glorification of "Western democracy" and the "Western way of life."

Juggling figures and facts, and profiting from the ignorance of the average citizen, bourgeois military propaganda endeavors to deceive some,

distract others from grave political problems, and to defame still others. It endeavors to assure enlisted personnel that the bourgeois social system is an "ideal" system, that the system prevailing in the capitalist world is the very best and therefore must be defended at all costs. Defend them from whom? From the "Reds," of course, from the Soviet Union and from "world Communism."

Behind this noisy propaganda generated to that insignificant portion of bourgeois society possessing a minimum living standard "above average," the apologists of imperialism are painstakingly concealing the flaws of the bourgeois world; mass unemployment in the United States, the FRG, Great Britain and elsewhere; thousands of persons without political rights; racial discrimination; racketeering and other evils of "Western democracy." Bourgeois propagandists do not like to admit, for example, that for many years now the number of fully unemployed in "wealthy" America has never dropped below 3.5 million, and reached a total of 5.5 million in 1971.[3]

Forms and Methods of Brainwashing. The Political Propaganda Edifice in the Military

"Imperialism," stated L. I. Brezhnev at the International Conference of Communist and Worker Parties in 1969, "cannot count on success if it openly proclaims its real aims. It is compelled to create an entire system of ideological myths which obfuscate its real intentions and lull the vigilance of peoples. For this purpose it has created a giant propaganda machine which employs all modern means of ideological influence."

An important role is played by various types of competition in ideological brainwashing, which is directly linked with performing missions of combat training and combat readiness. As a rule competition is based on total utilization of the principles of personal initiative, competitiveness and enterprise.

For example, the commanding officer of an American destroyer announces before leaving on a cruise that a competition for "best sailor" will be held on board ship; upon the ship's return to base the most earnest and hard-working sailor is declared "best," and the ship's company is even entitled to "elect him captain for a day." On a Sunday or holiday the competition winner moves into the captain's quarters, is served by the captain's orderly; he orders that movies be shown to the crew or that extra coffee, pie or something else be served with dinner on the basis of economized provisions. This entire show is photographed, announced to the press and publicized as an example of the "American way of life and democracy."

Similar farces and competitions are held in many armed forces units and garrisons of the United States, the FRG, Great Britain and other imperialist nations, where with great pomp and circumstance they announce the "serviceman of the month," the "soldier of the year," the "best marksman in the unit," the "loudest sergeant in the army," etc.

At first glance all this seems quite innocent. But one should not forget that the purpose of all this is to encourage the serviceman to perform his duties more zealously. In a combat situation these types of individual competition are transformed into a drive for the greatest number of combat missions flown, the greatest tonnage of bombs delivered, and the most enemy military personnel or civilians killed.

British soldiers in Kenya, for example, before a wave of popular rage swept them from this country, competed for the greatest number of patriots killed, presenting as proof of their "accomplishments" the chopped-off ears, hands or heads of their victims. The men of the French foreign legion in Indochina and Algeria did exactly the same thing. U.S. pilots in Vietnam, burning schools, hospitals and residential blocks of cities and villages, and strafing civilians, including children, compete for the title "combat centurion."

The armed forces of the imperialist nations extensively employ various kinds of group competition, utilized as a means of implanting the corporative spirit, welding together subunits, developing in military personnel a sense of "special pride" in belonging to a given service, arm, large unit and unit.

Ideological brainwashing of enlisted personnel in the process of combat training is merely one of the elements of the overall system of military training. At the present time the armies of all imperialist nations hold on a regular basis compulsory-attendance special classes during duty hours, for the political indoctrination of personnel. They are as a rule conducted by subunit and unit commanders who, in conformity with regulations, bear the entire responsibility for the morale of their men, their conduct in battle, and their degree of preparedness to fight for the interests of the ruling clique, which are objectively alien to the rank and file serviceman.

These classes bear different names in different armies: the names are of a demagogic, camouflage nature: "Discussion Sessions," "Commander Information Hour," etc, but their political essence and content remain unchanged, retaining first and foremost an anti-Soviet, anti-Communist orientation.

For the sake of illustration we might take, for example, the U.S. Armed Forces. For many years now a course entitled "Democracy Against Communism"

has served as a basis for political classes. This course follows a textbook of the same name. The course includes the following topics: "Democracy Face to Face with Communism"; "What Is Communism?"; "What do Communists Do with Freedom"; "How Communists Control Men's Minds"; "How Communist Parties Operate"; "How Communists Seize and Hold Power," etc.

Also of patently anti-Soviet, antipopular content is a course aimed at political justification of the aggressive actions of U.S. imperialism, propaganda about imperialist military blocs, systems of overseas military bridgeheads and bases. This course includes such topics as "Why We are in Europe," "Orientation: Germany," "Now Vietnam," and others.

The press serves as an important vehicle of ideological influence on personnel. The bourgeois press is readily available in the army and navy (it is absolutely prohibited for personnel to read progressive, and particularly Communist publications; persons caught doing so are subjected to the most ruthless persecution). Military newspapers and magazines have large circulations. The U.S. Armed Forces, for example, contain such mass-readership newspapers as Stars and Stripes, which is published daily in several editions, the service weeklies Army Times, Navy Times, and Air Force Times; a newspaper for troops stationed overseas, Overseas Weekly; newspapers of formations, large units, and a large number of magazines for command, enlisted and NCO personnel. The majority of them wage constant and vicious anti-Soviet, anti-Communist, militarist propaganda.

Among the "works" recommended to the servicemen of bourgeois armies as handbooks of anti-Communism are Soviet Ideology by [G. Uetter], International Communism by [R. Khovental'], Communism and Revolution by S. Black, The Soviet Cultural Offensive by F. Barghorn, A Documentary History of Communism by R. Daniels, Soviet Marxism by H. Marcuse, and others. Some studies of this type claim to be scientific and scholarly, while others, such as The Red Army Today by U.S. Army Col L. Ely or D. Cameron's This Is Your Enemy, are simply base falsifications designed for the man on the street.[4] But they all have one common feature -- a malicious anti-Soviet orientation, a pathologic hatred toward our country, its people and army, toward everything genuinely democratic and progressive.

The imperialists and their propaganda agencies have long since armed themselves with the wealth of experience of Nazi anti-Soviet propaganda. Side by side with the above-listed "domestically-produced" ideological poison, today the writings of Nazi German ideologues and their hangers-on of World War II vintage are being published in the United States, the FRG and elsewhere.

In recent years there has occurred in the United States publication and large-scale purchase by the Defense Department of books written by many Nazi war criminals, by a number of high officials of the former Japanese Imperial Army, of the Armed Forces of Fascist Italy, etc. Army and navy newspapers and magazines widely advertise these publications.

In addition to the press, many other forms and methods, radio and television in particular, are employed for the purpose of political brainwashing of military personnel. In March 1970 the military magazine Army Digest, which is the principal mouthpiece of U.S. Army information entities, reported that in the United States there is a special "Armed Forces Radio and Television Service," which possesses a number of radio networks both at home and in overseas areas where U.S. troops are stationed. This service operates more than 200 military broadcasting stations and 92 TV studios.[5]

In order to achieve ideological enslavement of the masses, the bourgeoisie always makes extensive use of the services of the church. Reactionary churchmen occupy firm positions in the armies of the imperialist nations. Suffice it to say that the armed forces of the United States, the Frg, Great Britain and other countries contain an extensively-developed regular-organization system of military religious bodies, with an active corps of thousands of military chaplains wearing officer's and generals uniforms, who enjoy all commander rights and privileges and who stand solidly on guard of the interests of the ruling classes but who at the same time endeavor to bill themselves as "protectors of the interests of servicemen," their "spiritual mentors and shepherds," who allegedly serve God, not the state.

The specific features of the activities of military chaplains enable them to be rather successful not only in exerting ideological influence on their "flock" but also in studying the attitudes of personnel, in determining "unreliables," i n i n forming military superiors of this fact, and in turning the other men against them.

In the imperialist armies there exists an edifice which directly engages in organizing ideological brainwashing, which assists the command echelon and supervises its activities. In the U.S. Armed Forces it is called "troop information" bodies, in the West German Bundeswehr -- "internal leadership service," etc. This is a very extensive system which has representation both at the highest levels of military command and in the large units, units, bases and service schools.

In the United States, for example, the Department of Defense and the services contain information agencies; headquarters of military command and formations of the army, navy and air force contain information divisions;

the large units, garrisons and bases contain information departments. Information entities perform their practical activities by means of visual propaganda through the press, radio and television. Staff "information" personnel (officers or NCOs) operate down to the brigade-separate battalion level at the majority of major garrisons, naval and air force bases, etc.[6]

The Bundeswehr and other bourgeois armies also contain an extensive organization for ideological indoctrination of personnel -- from ministry level down to large unit and unit. The principal agencies of the FRG Ministry of Defense which direct and supervise these efforts among the troops are the Bundeswehr GHQ personnel and ideological indoctrination division and the so-called information and press headquarters of the Ministry of Defense, established at the beginning of 1971 and containing, as reported in the magazine Wehrkunde, a press division, a central "current political information" editorial board, and a number of entities for "public relations," armed forces publicity, relations with civilian propaganda agencies, etc.

A considerable portion of the U.S. military budget comprises expenditures for propaganda and ideological indoctrination of military personnel and the civilian populace. These expenditures are growing year by year. U.S. Senator Fulbright recently stated that in the last 10 years appropriations for direct military requirements have doubled, while expenditures for Department of Defense propaganda efforts have increased 15-fold.[7]

Results of Ideological Indoctrination. The Moral Countenance of the Imperialist Armies

Spending enormous sums on military propaganda and possessing a substantial body of experienced experts in ideological indoctrination of military personnel and a varied arsenal of technical devices, bourgeois army leaders are undoubtedly achieving certain favorable results.

The majority of armed forces personnel of the United States, the FRG, Great Britain and other imperialist nations have been thoroughly impregnated with the poison of anti-Communism and anti-Sovietism and indoctrinated in a spirit of hatred toward the Soviet Union, toward all socialist countries, the world Communist and labor movement. It is characteristic that, while expressing certain dissatisfaction with conditions in the army, navy and in the country, and sometimes openly demonstrating against various government actions (as, for example, is presently occurring in the United States in respect to the war in Southeast Asia, the handling of the ethnic minorities and race problem on the domestic scene, the efforts against poverty, crime, etc), a large percentage of dissatisfied military personnel as a rule do not extend their indignation beyond certain specific problems, do not express opposition to the exploiter system prevailing in that country, and do not demand

radical social and particularly revolutionary reforms, but on the contrary often loudly proclaim their anti-Soviet, anti-Communist convictions and attitudes.

The war presently being waged by the American imperialists in Southeast Asia, acts of aggression and provocation against other peoples, as well as numerous colonialist acts by the British, Dutch, Belgians, and Portuguese in Asia, Africa, and Latin America convincingly indicate that the overwhelming majority of the cadre personnel of imperialist armies as a whole constitute a force which is reliable from the standpoint of the military leadership, a force which carries out its robber mission not only because their commanders order them to do so but also on the basis of personal conviction, that is consciously. These officers and enlisted men, stuffed with bourgeois propaganda stereotypes, believe (or at least claim to believe) that by their actions they are "defending democracy against Red totalitarianism," "are defending Western civilization," are saving lands allegedly threatened by "the Communist peril," etc.

Even under conditions of a constantly growing discontent in the United States with the war in Vietnam, Laos and Cambodia, the U.S. Army command as a whole does not encounter among military personnel really serious (not to speak of political) resistance to participation in this overt aggression, which has been condemned by all mankind, and does not experience particular difficulties in recruiting tens of thousands of volunteers for enlistment in the army and navy; a rather large number of persons express a desire to be sent to Vietnam and voluntarily remain there for a second tour of duty.

At the same time, characterizing the moral countenance of the personnel of imperialist armed forces, and in particular of the U.S. Army and Navy, the principal striking force of imperialism, one cannot help but note a number of factors which seriously weaken personnel morale, factors which demoralize military personnel particularly under conditions of failures on the battlefield and on the home front.

While not experiencing any particular difficulties in obtaining recruits, nevertheless official spokesmen of the Pentagon have in recent years acknowledged time and again that a great many young people evade military service, as well as a high rate of desertion, particularly in the Army and Marines. Figures in the press state that in 1970 alone more than 80,000 men deserted from these two services.[3] Many of them "went over the hill" (an expression used by the Americans to refer to military desertion) after receiving notification that they were being shipped out to Vietnam. More than 60,000 draft-age Americans in recent years have fled to Canada, Sweden and elsewhere to avoid military service. This assumed such a massive scale that in August 1970 the Pentagon issued a directive order calling for the establishment in each service of a special center to

maintain desertion records, with the aim of tracking down and arresting deserters.

In recent years there has been a sharp increase in the number of young Americans attempting to evade military service with the aid of legal methods. Many young men today refuse to serve for allegedly religious reasons, although American youth has never been particularly noted for its religious faith.

Of course the overwhelming majority of persons who avoid military service with these methods do so as a rule not on the basis of ideological or political convictions but rather out of cowardice. The war in Vietnam, in spite of its growing unpopularity, is in this respect nothing new in the history of the United States. Large-scale desertion also occurred during the war in Korea.

Even during World War II, when antifascist attitudes were strong throughout broad segments of American society, official statistics state that approximately 1 million men -- one tenth of the total number inducted into the armed forces -- evaded military service through desertion (including self-inflicted wounds), feigning physical and mental illness, etc.[9]

A much greater cause for concern to U.S. military leaders than the problem of desertion and draft evasion are political acts of opposition by enlisted personnel and even some officers against Washington's Vietnam adventure and the spreading of the war to other Southeast Asian countries.

In September 1970 the Armed Forces Journal, a semiofficial organ of the U.S. Department of Defense, published a special article acknowledging the existence in the army and navy of 14 organizations "opposing the war in Vietnam and advocating democratization of life in the armed forces."

The majority of these organizations publish antiwar newspapers and journals, the total number of which, according to the newspaper Daily World, already exceeds 65; some of these are published at overseas U.S. bases -- in the FRG, Great Britain, Japan and elsewhere. A navy underground newspaper is even published in the U.S. Sixth Fleet, by the local chapter of the "Union of American Servicemen."

Some American servicemen oppose the policies of U.S. ruling circles, and particularly the criminal war being waged by U.S. imperialism in Vietnam, not only in word but in deed as well. This is manifested in public condemnation of the war and those responsible for it, in outright refusal to carry out orders to go into battle or to fire at the enemy, in sabotage of combat equipment, in participation by military personnel in antiwar marches and demonstrations within the United States, in desertion to the

side of the patriotic forces in Indochina, etc. Although cases of this type are not presently of a mass character, they have recently been increasing in frequency.

A typical phenomenon recently has been active participation in antiwar demonstrations by an increasing number of American Vietnam veterans. Within the United States proper the war has exposed the entire depth of social injustice, racism, chauvinism, and the cult of violence. Vietnam has opened the eyes of many to the hypocrisy and cruelty of the American system.

The struggle of blacks serving in the U.S. Armed Forces, who are fighting primarily for their human rights and against racial discrimination, is merging with the political, antiwar struggle of a segment of U.S. military personnel. At the present time this struggle encompasses a comparatively small segment of personnel and is aimed not so much against the entire vicious system as a whole as against certain obvious distortions, for the sake of individual, at times very mercenary aims. Nevertheless, objectively speaking this is a problem which is of concern to U.S. military leaders, and they are endeavoring to take steps in order on the one hand to eliminate the most powerful causes of such opposition and on the other to crush this protest movement, particularly when it is manifested in active form.

The war in Vietnam, with its character, alien to the rank and file American, its unpopularity and hopelessness, an overall decline in morale, a sense of spiritual bankruptcy, a fear of tomorrow and many other such phenomena, typical of the present-day American society as a whole, are also exerting a continuously growing influence on the U.S. Armed Forces as well. This is manifested first and foremost in a growth of drug addiction and alcoholism among military personnel, an increase in crimes, outrages and other such acts committed by military personnel.

Indoctrination of officers and enlisted personnel in ideals of aggression and brigandage, in a spirit of hatred toward other peoples, propaganda of nationalism, chauvinism and racism, glorification of the cult of power, etc inevitably lead to a situation where the moral principles of the capitalist society are formed in the majority of personnel, with its typical inhumanity, cruelty, and extreme selfishness.

Imperialist participation in criminal adventures is always accompanied by mass crimes and savage acts against the civilian population and enemy prisoners of war, outrages, acts of violence, looting and pillaging, whereby very frequently these acts of savagery and outrages are committed by military personnel not only because this is demanded by their commanders but also, so to speak, at the personal initiative of enlisted men and

officers -- tyrants, robbers and murderers. Savage acts of repression committed by American soldiers against old men, women and children in My Lai, as other, similar events in South Vietnam, numerous facts of torture and mass execution of civilians and prisoners of war during the 1950-1953 Korean conflict and in other aggressive adventures do not constitute exceptions to the rule, as bourgeois propagandists try to claim, but rather the rule itself, the standard of conduct of the American military.

And this is quite natural, since without the realistic capability of approaching the men's hearts and minds and of convincing them of the justice of the cause they are defending, the ruling circles and military leaders are counting on lies and demagoguery, political deception and blackmail, bribery and corruption of the conscience of the citizen in military uniform.

It has been reported in the press that U.S. military personnel stationed in dependent countries each year commit thousands of various criminal acts and outrages against the local population. The crime rate is particularly high among U.S. troops stationed in West Germany and the Far East. According to a report by the Department of Defense, presented in November 1970 to the Senate Armed Services Committee, between November 1968 and November 1969 alone foreign courts examined 46,000 cases where charges had been brought against American servicemen and members of their families, including 5000 criminal acts, 337 of which were cases of rape and 317 murders. The courts were extremely lenient with the criminals -- only 158 Americans were sentenced to prison terms.

The bandit proclivities of the personnel of imperialist armies are extensively manifested not only in war but in peace as well, and not only when they are stationed abroad, in dependent countries, but at home as well. A vivid example of this is the savage treatment meted out by the U.S. military in May of this year in Washington against participants in antiwar demonstrations and peace marches. Even the senators were shocked with the patently Gestapo methods employed in crushing the demonstrations. All these events were extensively reported in the Soviet and foreign press.

We have described in detail the moral countenance of the U.S. Armed Forces, because they represent today the largest army of present-day imperialism, its main spearhead force of aggression and plunder. Analogous features and phenomena are observed in the other imperialist armies. Also characteristic of them are on the one hand the predominance of reactionary, antipopular attitudes among the bulk of military personnel, extreme chauvinism and racism, hatred of the Soviet Union and the other socialist nations, willingness to participate in any imperialist adventure, while on the other hand there is a skepticism about the justice of their mission and the correctness of the policies of the ruling circles in their countries, an indifference and sluggishness which are becoming ever stronger among a

certain segment of enlisted personnel, and even officers. In some servicemen these attitudes are developing into open dissatisfaction, protest sentiments, which sometimes lead to antiwar actions.

One characteristic feature of the moral countenance of the bourgeois military is a base, vile passion for personal enrichment, cultivated and encouraged by military leaders, a selfish attempt to extract benefit for oneself from every dealing, to make a profit. The very nature of service in these armed forces, where professional soldiers and mercenary noncommissioned officers constitute the foundation, the backbone of personnel, inevitably leads to a situation where a spirit of personal gain and mercenariness reigns supreme, a result of which is corruption, theft of public property, and a tendency on the part of some servicemen to work "deals" and commit crimes for the sake of personal gain.

One cannot say that the command edifice is unaware of these facts. Measures are being taken, but adequate results are not being achieved. The ethics of the bourgeois society, constituting an organic product of that society, penetrate the masses and exert a corruptive influence on all strata of society, including armed forces personnel.

The main effect being achieved by the ruling circles and military leaders of the imperialist countries is a deep political and ideological indoctrination of personnel, instilling in them a conviction that the cause for which they are being trained to fight is right and just. They have succeeded in indoctrinating the majority of enlisted personnel in a spirit of hatred toward the socialist nations, particularly the USSR, and toward peoples struggling for freedom and independence, and they have succeeded in arousing base feelings and instincts.

But it is well known that armed forces whose personnel are indoctrinated on such principles cannot create the proper foundation for ensuring among the enlisted personnel masses a stable moral spirit for a protracted period, particularly under conditions of intense, difficult war. Morale which is maintained by deception, coercion and corruption can never be adequately stable and strong. The best examples of this are the state and attitudes of the American military during the aggression in Korea and Indochina.

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Marxism-Leninism and our military science demand that the potential enemy be assessed correctly and objectively. We know and have proven to ourselves time and again that imperialism is a powerful and insidious foe, who possesses large, well-trained armed forces. They are armed with modern weapons and combat equipment; personnel are indoctrinated in a spirit of

hatred toward the Soviet Union and the socialist nations, the ideas of socialism and Communism. All this advances to the forefront the necessity of maintaining a high degree of vigilance in respect to the aggressive schemes of the imperialists, constant combat readiness, a high degree of organization and firm military discipline, and a serious study of the armed forces of the potential enemy both as a whole and at separate echelons.

FOOTNOTES

1. Stars and Stripes, 7 November 1969.

2. Navy Times, 24 December 1970.

3. U.S. News and World Report, 1 January 1971.

4. Navy Times, 17 May 1970.

5. Army Digest, March 1970.

6. New York Times, 1 January 1970.

7. Ibid., 2 February 1971.

8. U.S. News and World Report, 1 January 1970.

9. Marine Corps Gazette, June 1954.

EQUIPMENT AND THE PSYCHOLOGICAL FACTOR

Lieutenant General Tank Troops (Retired) I. Petrov

The scientific and technical revolution in the Armed Forces has entered a new phase of development in recent years. Not only have the combat power, rapidity of action and reliability of the systems, complexes and installations increased as a result of technological progress, but also the requirements pertaining to their study, use and combat employment. The development of automation in the Army, Air Force and Navy has simplified the work of servicemen only in appearance. In actual fact their work has become more complicated and has been filled with new content. It demands a high level of psychological pressure. This is why the matter of analyzing a number of psychological problems has become especially pressing, in particular that of the place of man within the "man-machine" system.

In connection with this publication by Voyenizdat (Military Publishing House) of the book Voyennaya inzhenernaya psikhologiya (Military Human Factors Engineering),[1] devoted to a review of basic problems in the relationship between military equipment and man, should be considered extremely useful.

Military human factors engineering, which emerged from practical needs and the logical development of science, represents a new branch of military psychology. It is the study of the interaction between the human soldier and military equipment, using not only data from other branches of psychology and psychophysiology, but also technical and mathematical knowledge.

The problems raised in the book bear convincing witness to the need for purposeful scientific research work on military human factors engineering.

The continuous development of the "man-machine" system, connected with the transfer to the machine of functions of an energy-producing and informational order, is altering the concrete structure of labor. Labor today, and especially military labor, is not only and not so much the expenditure of muscle power and nervous energy as it is a manifestation of higher intellectual, emotional and volitional functions which are socially conditioned and indicative of the personal characteristics of the soldier.

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[1] Voyennaya inzhenernaya psikhologiya. Authors' collective. Voyenizdat, 1970, 398 pp.

The work of the modern soldier increasingly consists of receiving and processing information, programming operations, making decisions and exercising control with a certain reduction and modification in the purely executive functions. In many military specialties the work of man becomes that of an operator, connected with remote control of actual objects and processes based on the perception of their informational models. Therefore consideration of the so-called psychological factor, that is, the possibilities contained in the psychological features of the personality, becomes especially important in the military field.

The reviewed book represents the first attempt at a systematic presentation of the content of problems in the area of military human factors engineering. The book provides a general presentation of certain results of experimental research obtained in the area of military human factors engineering.

The material in the book is combined into three sections.

The first section presents general problems of military psychology and military human factors engineering. Special attention is devoted to examination of the psychological structure of the soldier-operator's work and an evaluation of his reliability. The facts presented and their analysis are of interest to a broad range of readers -- commanders, political workers, military engineers, military psychologists, pedagogues and doctors.

We feel that a correct structural outline of the basic directions of the given science has been created in the book based on analysis of general trends in the development of human factors engineering. Its most urgent problems have also been formulated: a) definition of the role and place of man in administration of the troops and the influence of the human factor on the effectiveness of the use of weapons; b) disclosure of the structure and principles of military human factors engineering; c) definition of the structure of various military-oriented "man-machine" systems; d) methods of experimental research and requirements for experimental equipment; e) mathematical procedures and modeling methods; f) principles and methods involved in the use of the given military human factors engineering with respect to the equipment, and so forth. (Page 13).

Backed by Marxist-Leninist philosophy the authors analyze the most important aspects of the basic directions of military human factors engineering: psycho-physiological, structural-systematic, cybernetic, operational and engineering-pedagogical. The practical recommendations for each of the indicated directions are of great interest.

In our opinion the book explains in a well-substantiated manner the fact that one of the most important problems of military human factors

engineering has to do with the development of methods and criteria for determining the possibilities and expediency of automating specific elements of human activity. The overall method of solving this problem is reduced to the following: 1) a structural analysis of the activities of operators; 2) disclosure of the laws involved in the development and formation of the informational, intellectual and executive activities of man; 3) determination of the possibilities of automating these activities; 4) consideration of the interests of the system in automating the individual links. (Page 19).

The main thing is to determine the reasonable degree to which man's work should be automated and, on this basis, to achieve optimum distribution of the functions between combat crews and automatic means. This is necessitated by the fact that operations carried out by man are accomplished with the use of modern control equipment in varying degrees. Certain of these, however, (for example, the operation of making a decision of a creative, heuristic nature) cannot be completely automated even at the highest level of automation and have to be performed by man.

The task consists in creating a complex in which the shortcomings of one or the other would be compensated for to the greatest degree and their advantages used in the best way possible. As a result, maximum combat effectiveness of the overall "man-machine" system is achieved by optimum coordination of the informational, energy, spatial, temporal and other characteristics of man and machine. All of the problems connected with planning such a system, however, must be solved primarily in the interests of the human operator for purposes of creating the most favorable working conditions for him.

In order to achieve this goal we must have close interaction and coordination between the technological system, engineering-psychological, and also sociopsychological and economic factors. The extensive participation of engineer-psychologists at all stages of the planning of military sytems, in resolving matters connected with the use of combat equipment, living conditions, professional selection and technical training of personnel is very important.

In analyzing the problem of professional selection the authors note in a well-substantiated manner the fact that military work requires a careful psychological selection of individuals capable of ensuring the most efficient execution of certain tasks which are typical of a certain type of operations. At the same time they indicate those qualities which must be revealed during the process of such selection.

Soviet scientists have worked out the basis for a comprehensive approach to professional selection. The book emphasizes the fact that such selection differs substantially in its comprehensive and dynamic nature

from the static type of selection based on tests, which is widespread in the capitalist armies where testing fills the social demands of bourgeois imperialists. (Page 30).

Operations involved in receiving and processing information play a leading role in the work of the human operator who is servicing modern military systems of control and management. In these systems the flows of information to the human are great. Man's motivating force is reduced to a minimum in the processing of such information. A system of complex psychological processes is activated, however. Under these conditions human activities involved in receiving information become markedly cognitive. That is why we feel that the real service of the author collective lies in the research of various aspects of the functions and possibilities of the "human link" in the overall "man-machine" system. Consideration of this problem and lines of thought in military human factors engineering represent the basic content of the first section of the book.

The second part is devoted to special problems of military human factors engineering, including the modeling of certain psycho-physiological functions of man and of individual problems involved in the application of human factors engineering. It deals with conditions of habitation, the psychological selection of military specialists, and military engineering-pedagogical psychology. It also contains recommendations pertaining to psychological selection and technological and psychological training of soldier-operators, military technicians, and engineers and engineer commanders.

Man has a number of advantages over machines although he is inferior to them with respect to certain parameters. In connection with this one of the problems of military human factors engineering has to do with the modeling of psycho-physiological functions of man for purposes of maximum use of the advantages of man, as well as those of machines, in technical systems.

The book rightly emphasizes the idea that the "necessity for modeling the psycho-physiological functions of man in military practice is linked with the circumstances of modern warfare." Among the basic circumstances the authors include: the effects of super-irritants; the shortage of information and time; the occurrence of dangerous situations; the functioning in difficult physical surroundings; the ever increasing level of automation of control of the troops and combat equipment, and so forth. (Page 158).

In considering the general theoretical aspects of this problem the authors offer a number of interesting practical recommendations pertaining to such

urgent problems as the possibility of modeling the psycho-physiological functions of man; control and normalization of the situation of the operator in a military-oriented automated system of control; the peculiarities of the group psychology of military work; the influence of conditions of habitation on the interrelation between man and machine; the psychological selection of military specialists; principles and methods of training soldier-operators; the psychological bases for designing simulators, and others.

We know that the decisive role in the formation of the personality belongs not to the inborn or inherited qualities of man, but to his work, his living conditions, the collective, and his training and upbringing. Within certain boundaries the natural features of the organism develop and change in general under the influence of these factors. Unfortunately, in our opinion the problem of selection of specialists according to physiological data receives a great deal of attention in the book, while the psychological aspects of the work of specialists is not developed (except for that of pilots).

In our opinion selection of the most practical method for studying the work of specialists requires analysis of the "man-machine" system as a whole, disclosure of the basic characteristics of interaction between man and machine, which will help to make fuller use of the functional, "adaptational" and creative potentials of the specialist. It is also necessary to eliminate equipment shortcomings which are interfering with the efficiency of the specialist's work. This, however, is only possible where the specialist-commanders, jointly with psychologists and engineers, conduct an analysis of each specialty, reveal the "bottlenecks" in the work of the machine as well as that of man, and define the specific features of the electronic computer, the psychological elements in the work of the specialist, and the demands made by the equipment on his psychic processes.

Development of the specialist occurs in a more optimum manner if this process includes, in their mutual links, his intellectual and emotional-volitional functions and considers the socially-conditioned and personal qualities.

The third section deals with certain branch directions in military human factors engineering. In our view this section (compared with the others) is not sufficiently well developed. It essentially reflects only problems of human factors engineering in the air force and among the radiotechnical troops. The interests of other branches of armed forces and of the arms and services are barely mentioned at all.

The authors themselves, by the way, admit that the materials discussed in this book are not of equal value with respect to thoroughness of development of their theoretical bases, experimental substantiation, and the use

of mathematical procedures. This situation is the result of the various degrees of study of individual problems in this new branch of science.

As a whole this is a useful and needed book. It provides a general idea of the content of the basic problems of military human factors engineering and will be read with interest not just by specialists, but also by a great range of military readers.

In conclusion, we would like to point out that basic changes in technical equipment of the troops have posed a serious problem of application of the achievements of psychology and its various branches in the military field, which requires a purposeful development of military psychology. This is essential in order to solve the problems connected with the selection of specialists, improvement in the moral-psychological training of the troops, coordination of the new combat equipment with man's potentials, and improvement in the reliability and effectiveness of the "man-machine" system.

One cannot but agree with the authors that the necessity is upon us to create a single scientific center under the Ministry of Defense for purposes of more expedient organization and coordination of scientific research work in the field of human factors engineering. (Page 395).

A thorough and comprehensive study of the psychological aspects of the work of soldiers will, to a great degree, facilitate improvement of their training, the best performance of military duty and, consequently, strengthening of the combat capabilities of our Armed Forces as a whole.

MEETINGS WITH READERS

At the beginning of July of this year the editors of the journal Voyennaya Mysl' held several reader conferences in the Southern Group of Forces. Editorial staff members discussed the journal's publishing plans for the immediate future and answered reader questions. All meetings were held in a businesslike atmosphere and involved the active participation of the officers and general officers who attended.

The individuals who spoke at the conferences noted that the officers of the Southern Group of Forces show great interest in Voyennaya Mysl'. The materials published in this journal are extremely helpful to them in studying the fundamental problems of military theory as well as in solving practical problems of combat training and military indoctrination of personnel. The number of subscribers to this journal has increased considerably in recent years, particularly in the units and large units.

It was emphasized that the readers are particularly interested in articles on CPSU military policy, military philosophy and sociological problems, general problems of military science and theory of the art of warfare, articles on the Lenin military theory heritage and materials dedicated to the results of the 24th CPSU Congress, particularly matters pertaining to strengthening national defense. Articles on military psychology and educational science, on military history and foreign armies, as well as critical and bibliographic surveys of new military literature enjoy deserved attention. Articles published this year which generated considerable reader interest included the following: "Defeat of the Assault Forces of Imperialism" (No 6); "International Indoctrination of the Fighting Men in the Warsaw Pact Nation Armies" (No 3); "The 24th CPSU Congress on Current Problems of Building Communism and Strengthening the Defensive Might of the USSR" (No 5); "Methods of Solving Operational Problems with the Employment of Automation Means" (No 1); "Methods of Increasing Operational Efficiency in the Activities of Control Entities" (No 2); "The Initial Phase of War" (Nos 5 and 6); "Problems of Methodology of Organizing Combat Operations" (No 5), and others.

Comrades B. I. Imelik, M. N. Tikhnenko, and B. V. Chelyshev expressed the desire that the journal continue regular publication of materials connected with propaganda of the Leninist military theoretical heritage, CPSU military policy and its leadership role in Soviet Armed Forces organizational development.

In the opinion of Comrades Yu. P. Bezrukavyy, Ya. I. Buzhak, A. M. Kiva, G. T. Krugovoy, M. N. Tikhnenko and A. A. Fomichev, the journal Voyennaya Mysl' should devote more space to a discussion of problems of troop control

with the employment of automation under conditions of heavy hostile electronic countermeasures. This problem is one of the most vital ones because modern combat operations are distinguished by enormous scope and are highly dynamic in nature. In order to overcome these shortcomings, in the opinion of readers it is necessary to continue comprehensive discussion of such basic fundamentals of automation as: the objective mechanism of the process of decision preparation; the working mechanism and process of thought; psychological motives and internal links between decision elements. A profound analysis of the possibilities and concrete ways of optimizing the computer-assisted commander decision should be a first-priority task.

Readers A. D. Antonov, D. M. Yermolayev, P. I. Lyubchenko, V. P. Orekhov, I. S. Sevryukov, and V. M. Telegin named a number of topics which they feel will be of interest to the journal's subscribers.

Comrades Atamanyuk, Kireyev, Lozovko and others spoke of the need for a profound and comprehensive study of the armies of the capitalist nations. They requested the editors to publish more materials exposing the aggressive policies and predatory plans of American imperialism and its military-political bloc allies. In their opinion it would be advisable to discuss in a systematic manner the psychological warfare methods employed by the potential enemy.

Many conference participants (Comrades Marinin, Perfil'yev, Telegin, Tikhnenko and others) noted the great importance of a profound elaboration of the experience gained in the Great Patriotic War and its innovative utilization for solving contemporary problems of military theory and practice. In the opinion of these officers, the military technological revolution by no means excludes the possibility of future utilization of the entire diversity of forms of combat operations which occurred in the last war. In the experience of the past war one can find much of benefit for contemporary conditions as well, particularly in the area of massing of forces on main axes, penetration of defense, organization of coordinated action and maneuver of troops. First and foremost one should study a method of approaching situation assessment and accomplishment of combat missions, comprehend the art of control and guidance of engagements, battles and operations, and penetrate more deeply into the truth of why things were done in one way rather than another.

Other suggestions were also expressed during the conferences, and critical comments were also made, which are being carefully studied. The editors will take steps to ensure that reader requests and suggestions are implemented in preparing issues of this journal both this year and next year, 1972.

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